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ILLUSTRATIONS.

Portrait of the late Professor E. M. Barry, R.A.

The Hook Memorial Church, Leeds.—Erected from the Designs of the late Sir G. G. Scott, R.A. 147

Memorial Tomb of Dean Hook, Chichester Cathedral.—Designed by the late Sir G. G. Scott, R.A. 160

The Church of the Sacred Heart, Paris (with Plan).—M. Abadie, Architect 162

Reredos, New Church College, Devonshire-street, Islington.—Mr. Alexander Payne, Architect 162, 163, 165

CONTENTS.

The Late Edward Middleton Barry, Professor of Architecture, R.A. 147

R. M. B.: a Wreath 150

The Past and Future of the Classic Order 150

Architectural Lectures, by the late Professor E. M. Barry, R.A.: Architectural Ornament 151

Inaugural Address of the President of the Society of Telegraph Engineers 153

The Empress of Russia's Winter Villa 154

Architectural Competitions 155

Recent Assyrian and Babylonian Research 156

The Parkes Museum of Hygiene 156

Reredos: New Church College, Devonshire-street, Islington 158

The Tomb of Dean Hook, Chichester Cathedral 157

The Church of the "Sacré Cœur," Paris 160

The Hook Memorial Church, Leeds 167

Architectural Association 167

"A Notable House" Criticised 168

Modern Art and the late Professor Barry 169

Paperhangings, Bedford Estate 169

Architectural Competitions 169

New Club Buildings in Glasgow 170

Dock-Building in Bombay 171

The Rates of Wages and the Hours worked in the Building Trade 172

The Northern Architectural Association: Heating and Ventilating 173

New Barracks and Military Buildings at Lancaster and Portsmouth 173

Sound 173

Prosecutions under the Metropolis Water Act 174

Water Companies' Objections 174

How should our Workmen be Educated? 174

Payment for Quantities by Builders 174

Condition of St. Mark's, Venice 175

Important to Arbitrators: Wynne v. Fenwick 175

Building-Owner's Liability for Architect's Directions: Santer v. Hesler & Co. 175

General Health the General Gain 175

"Light, more Light" 175

Staines Town-hall Competition 175

Adulteration of Portland Cement 175

"A Lamented Loss" 175

Gas-pipes and Rats 176

The Evils of Overflow Pipes 176

Painting on Stone 176

Provincial News 176

Church-Building News 176

Miscellanea 177

The Late Edward Middleton Barry, Professor of Architecture, R.A.

THE profession and the country have suddenly to mourn the loss of a man not easily to be replaced, cut off in the mid-time of his career, and whose powers had already been so tested and manifested that much more was naturally expected of him. Edward Middleton Barry, R.A., Treasurer of the Royal Academy, and Professor of Architecture, twice elected by his colleagues there for terms of five years in 1873 and 1878, died suddenly while attending a meeting of the Council of that body on Tuesday, the 27th ult. The cause of death appears to have been apoplectic seizure, complicated by weakness of heart, and death was instantaneous.

Mr. Barry was the third son of the late Sir Charles Barry, R.A., and was one of five sons. His eldest brother, Charles, is well known as an architect of position, and has recently filled the presidential chair of the Royal Institute of British Architects. The second son is the distinguished Principal of King's College and Canon of Worcester. One of his younger brothers died some years ago, and the youngest of the five sons is Mr. John Wolfe Barry, C.E., already recognised as an eminent member of his profession. It is seldom that so many members of one family have attained for themselves distinction.

Mr. E. M. Barry was born in 1830, and was therefore in his 50th year. In his childhood he was delicate, and a subject on that account of much anxiety to his parents. From that cause he was found unable to live in London, and as his father's professional occupations rendered it impossible for him to reside elsewhere, Edward Barry's childish days were mostly passed with a confidential servant, who was devotedly attached to him, at Blackheath. At an early age he was sent to school in that neighbourhood, and afterwards to an excellent private school at Walthamstow; his constitutional delicacy making his parents fearful of subjecting him to the rough routine of a public school. He was afterwards for a time a student at King's College, London. He was then placed by his father for a year in the office of Mr. Thomas Henry Wyatt, and thus commenced his professional life, and a friendship between the master and pupil which grew in depth and warmth as years went by. At an early age he entered his father's office, in accordance with his own earnest wish, and shortly after his elder brother Charles had quitted it to commence practice on his own behalf in partnership with the late Mr. R. R. Banks. Mr. E. M. Barry remained assisting his father until the time of the sudden decease of the latter in 1860.

While occupied in thus working for his father day by day, the subject of our memoir not only became a student at the Royal Academy in 1848, in the schools where he was afterwards to occupy the Professorial chair, but with untiring industry and devotion to his art laboured successfully on works which were his own, snatching for this purpose from his hours of rest the time to work out his ideas. The first building he thus designed and executed was St. Saviour's Church, Haverstock-hill, in 1857; and in 1859 his designs were made for St. Giles's

Schools in Endell-street, which were also carried out under his superintendence, and at once gave him a position as an artist. We are informed that the drawings for these and other early works were made by him unknown to most of his family until they were completed, and the works entrusted to him. And we remember a statement by the late David Roberts and others that his admission to the Royal Academy as an Associate in 1861 was largely due to the acknowledged talent displayed in the Endell-street schools. In 1857 he was personally consulted by the late Mr. Gye as to a design for Covent Garden Theatre, which had been recently destroyed by fire. The present theatre was erected under his direction in the singularly short time of eight months, involving incessant labour and the exercise of large artistic and constructive skill; and in the following year the "Floral Hall," an iron construction adjoining, was executed from his designs.

In the meantime, he was rendering valuable assistance to his father in his numerous works, and especially in those of the New Palace at Westminster, and on the lamented death of Sir Charles, in 1860, he was appointed by the Government to superintend the completion, from his father's design, of that great work. Many other buildings of importance (among them Halifax Town-hall) which Sir Charles then had in hand were also completed by him. From that time the name of Edward Middleton Barry has been well known as one of the ablest and most distinguished architects of the day, as will be evident from the list of his works, many of them of national importance, and all showing great ability, which we subjoin, and in which we have distinguished those designed and carried out during his father's lifetime and those executed since that time.

In 1859 he was elected an Academician. In 1873 he was elected by the General Assembly of the Royal Academy Professor of Architecture, on the retirement of the late Sir G. Gilbert Scott, R.A., for a term of five years; and so well did he discharge the duties of this post that in 1878, at the conclusion of the usual term of these appointments, he was again elected by the General Assembly for a further term of five years. His series of annual lectures to the students of the Academy, as Professor of Architecture, would alone stamp him as an able architect, a good scholar, and a capable and independent thinker, and will remain of lasting use to all young students of the art. The whole of them will be found in our volumes.

In 1874 he was appointed by her Majesty Treasurer of the Royal Academy, a position held by him, as we are informed by his colleagues, with great ability and their fullest confidence; and during the six years he had held this appointment his skill and taste were always at the disposal of the Academy in the building operations the Council from time to time found it necessary to carry out. It may not be generally known that the treasurer of the Royal Academy has always been selected from among its architectural members, and that it has always been customary for him to advise and act for his colleagues as architect when any building works were to be done. The effective entrance and staircase of approach through the old building of Burlington House to the present new galleries (which latter had been executed by the late Mr. Sydney Smirke), is perhaps the principal of the works he there carried out in an honorary capacity; and even at the last council he was permitted to take part in, he had said, we are informed, but a few minutes before he was snatched away, that "his advice had been and would always be willingly given to the Academy." A resolution recently passed, which prohibited the employment of the treasurer as architect, and which he thought was directed at himself personally, had given him, as we know from his own lips, much pain. The following letter from the President of the Academy, Sir Frederick Leighton, addressed to Mr. Charles Barry, is therefore the more interesting and satisfactory:—

"When I received your request yesterday, I assented, without hesitation, from a sincere desire to serve you in anything which had for its object to honour the memory of the friend and colleague whose loss I now deplore. On looking, however, more closely into that request I am not a little perplexed to know how to satisfy it. You ask for some account of Mr. Edward Barry's connexion with the Royal Academy as a contribution of materials to a brief memoir of him which is to appear in the *Builder*. But the relations of a trusted and efficient treasurer with the body whose finances are his care, as far as the discharge of his duty is concerned, are uneventful, and offer little or no scope for biographical development. It was not, as you know, as a member, that he was first brought into contact with the Academy, for he was once a student in those schools in which he was eventually to hold a professorial chair. I find his name entered on our books in 1848. Thirteen years later, in 1861, he received the honour of Associateship; in 1869 he was elected a full member. But in 1873 a yet further mark of esteem was offered to him by his colleagues, for he was in that year elected to the Professorship of Architecture,—an office to the duties of which he devoted himself with so much zeal and to so good purpose that, on the expiration of the appointed term of five years, the voice of the Academy was once again recorded in his favour, and he had just entered on the second year of his second term when an untimely death overtook him in the performance of his duties. The readers of the *Builder* are familiar with the lectures of our late treasurer, and need not be reminded of those merits of breadth of view, of healthiness of tone, and lucidity of expression, which characterised them.

It was in 1874, on the resignation of the late Mr. Sydney Smirke, that the high trust of our Treasurership was placed in his hands, and those who know how considerable was his capacity for business will not need to be told that the finances of the Royal Academy were handled by him with ability and success. But his services do not end here. At the death of Mr. Smirke the galleries of our new buildings were left incomplete in an important point,—they lacked an adequate and becoming approach. This approach Mr. Barry was asked to provide. The old steep staircase was removed by him, an easy ascent substituted, and, under his design, the present handsome and ornate doorway fittingly united the new galleries to the old vestibule of Burlington House. Other and important modifications were made by him in those parts of the building to which the public has no access, and have added materially to their use and convenience.

These, my dear Barry, are, in outline, the services through your brother which deserved the thanks of the Royal Academy; but it was on other grounds than these that he deserved and enjoyed the personal regard of his brother Academicians, on the grounds, namely, of his uprightness, his genial courtesy, and a dignity of self-control, which I have rarely seen surpassed."

In 1860 Mr. E. M. Barry was elected an Associate of the Institution of Civil Engineers, in the affairs and objects of which he always took the warmest interest, and he was a very frequent attendant at its weekly meetings. Soon after he was elected a Member of Council of that Institution for the one year, for which time only the rules of the body permit an Associate so to act.

In 1878 Mr. Barry was elected one of the Vice-Presidents of the Royal Institute of British Architects, where his artistic knowledge and sound practical good sense and business capabilities rendered him a most useful officer; and we know it was the earnest wish and hope of his colleagues there that at no distant day he would render the Institute and the profession more distinguished service as President.

His latest works of importance were the new offices of the Art-Union of London, a success in Italian Renaissance architecture, and the new buildings in the Temple,—an example to which we have on other occasions referred,—both completed only a few months ago.

In 1867 the general competition for the erection of new Law Courts took place, and if the report of the judges, assisted as they were by distinguished professional referees, had been followed (as was not unnaturally expected by Mr. Barry and the other competitors), that important work would have been entrusted to him. He grieved much over the injustice to which he was subjected, but it would be useless here to discuss the matter again; we have before now expressed our own opinion on the matter pretty strongly.

There is no doubt that the results of the Law Courts and National Gallery competitions rankled in his mind to the day of his death, and may even be said to have hastened his end; and these were followed by other great and severe disappointments, so much so, that he used to say, "It sufficed for anything he would have liked to come in his way for it to end in failure." He seemed to long to leave his mark in some important national work, and, dwelling especially on the fact that another member of his family was in the same profession, he used to wish he had adopted the bar, as, with his indomitable perseverance, power for hard work, and clear judgment, he felt he might have achieved success.

We have a letter before us which he addressed to the conductor of this journal when he was smarting under the demand from the Office of Works that he should deliver up the whole of the drawings and papers connected with the erection of the Houses of Parliament (bequeathed to him by his father), in which he says:—"What with the injustice I have suffered about the Law Courts, National Gallery, and this, it seems as if there was a dead-set made against me, and I am tempted to quit a profession where such things are possible. It would seem as if architects were outlawed and have no rights."

It was his custom to attend the services of the Temple Church, in which he joined with pleasure and earnestness; and he loved the old associations of the place, and the surrounding buildings. He delighted in the society of scientific men, such as engineers, lawyers, and physicians, and entered keenly into their experiences. He endeavoured to shake off his professional cares in private life, and was cheerful, kind, and generous to old and young, and a harsh word of any who had injured him never escaped him. Those who knew him best, admired his unselfishness, love of truth and justice, which qualities he always appreciated in others.

For years he had suffered from sleepless nights, and spent much of his wakeful time in reading. Biographies, books of travel, and modern histories always interested him; and it astonished those about him to see how he could go through so much daily work as he did, with often only three or four hours' rest. His only real recreation was a change on the Continent; and a short stay in Paris or Switzerland was his chief delight, the beauties of architecture in Italy, Germany, or Belgium, having also an unfailing interest for him. Feeling the extra pressure of his lately-written lectures for the Academy, he had planned to start the day after the last should have been delivered, for a week's change. His general health had been failing for some time past, and he had three or four attacks of sudden pain and sickness, and complained very much of shortness of breath through the late trying cold weather and fogs. He often spoke of sudden death, and said a week before the end, "he felt breaking in mind and body," and that "his work was done"; and ten days before, after talking for some time to his son, sixteen years of age, he said, "If I am suddenly called away, you will know now what I wish." On the morning of his death, however, he was cheerful about the future, and planning to receive friends at his house, in his usual hospitable way; and he left his home saying, "I shall be back late to-night"; no parting words were granted to those dear to him, who never saw him again alive. Those who served under him, as servants or pupils, always became attached to him. A more affectionate and kind-hearted son, husband, and father never lived; and a wife and two children mourn his irreparable loss.

Mr. Barry's great talents, his wide reading in architectural subjects, his undoubted honesty and integrity of purpose, his excellent business capacity, as well as his social gifts, naturally created around him a very large circle of friends, professional and otherwise, and his death is widely regarded as a personal and national loss, which may not easily or soon be repaired.*

The place which Mr. E. M. Barry occupied as an architect, considered in comparison with other architectural work of his day, is not very easy to characterise by the generally recognised formulæ which distribute architects at the present day into "Gothic" and "Classic" and "Queen Annic." Of the three he was certainly most distinctly Classic, but his Classic design was not by any means confined to accepted types; it had sometimes a degree of Gothic

* The Treasurership of the Royal Academy being a direct appointment by the Queen, when Mr. Barry's death was made known to her Majesty, she, with her invariable kind feeling and sympathy, at once telegraphed to the Academy her condolence on the loss they had so suddenly sustained.

feeling, and even occasionally of Gothic detail; and he was quite ready to handle the Gothic style when called upon to do so, and generally treated it with good effect, and in a manner of his own: a manner not satisfactory to the more enthusiastic students of Mediæval art,—who, indeed, would mostly have repudiated him for the mere fact of his being sufficiently eclectic to practise both styles. We should surmise, however, that his own inclinations never led him to design in anything approaching to pure Gothic, except in two cases (the design for the Law Courts and his reproduction of the Charing Cross), and that his own sympathies were almost entirely with Classic, or a style of design directly derived from Classic models. His view of his position we remember him giving some ten years ago, in so many words, to this effect: that he believed the taste for pure Gothic, and for what might be called romantic and picturesque architecture, was only a passing fashion, and was unsuitable to the architectural demands of the present day, and that he was "content to wait" until it had blown over, and the appreciation of a more dignified and symmetrical architecture had reasserted itself. His architecture was characterised more by what may be in general terms called "common sense" (a very valuable quality in architecture), rather than by any effort after what may be called the poetry of architectural design; so far, at least, as his executed works are concerned. Like his father, he was eminently practical as an architect, was a master of planning, and was satisfied with nothing but the very best arrangement and execution of practical detail in the buildings which he superintended. It would be a mistake, however, to suppose that he was entirely indifferent to the picturesque of detail even from the Gothic point of view; and we remember the interest with which he pointed out to us once some of the realistic carving in the cloister arches flanking New Palace-yard (a part of the building entirely carried out by himself), in which flowers and birds were introduced so as to make a little bird-legend, we forget precisely what, carried out from one side of the arch to the other, and seemed as pleased with the *naïve* fancy as any Mediæval sculptor might have been. Speaking of the Westminster Palace, those who would question his skill in dealing with Gothic architecture should remember how much he had to do with the carrying out of this great building during the latter part of the work, in process of which he would have acquired a thorough knowledge of the treatment of Late Gothic detail, though he seldom applied it. Among our own numerous illustrations of his works is a Gothic memorial pulpit for Peterborough Cathedral (*Builder*, 1874, p. 352) in which the details are nearly pure Norman in character, but treated in a highly ornate manner, giving a somewhat novel and rich expression to this style of detail. His Gothic design for the Law Courts was a very fine one considered *en masse*, though the details were deficient in power; and it had the additional interest that it represented an attempt to adapt the dome to the Gothic style on a great scale. It is remarkable that this most interesting experiment should have been twice made of late years by English architects in designs on the largest scale, the other example being Sir G. Scott's design for the Berlin Houses of Parliament, and that both were destined to remain only as ideas expressed on paper. In regard to plan, his Law Courts design was pronounced emphatically the best, and on the grounds of judgment first laid down for arriving at a decision, the commission should have been his, plan counting before design. It is not necessary or desirable to refer again to the train of circumstances by which the commission was eventually wrested from him entirely; but it is due to his memory to say that, whatever may be the opinions entertained as to [the advantage of the result in an architectural point of view, Barry was most decidedly wronged in this matter.

Among the buildings which illustrate the style which was more that of Mr. Barry's predilection a few may be here mentioned. The most important perhaps is Covent Garden Opera-house, of which, however, the external design is much more according to regular Classic pattern than most of his buildings; which very likely we shall not be wrong in attributing partly to the wish of his clients for a building bearing the usual and conventionally-established appearance of an important theatre, in which a grand Classic portico has generally been regarded as *de rigueur*; or perhaps the architect may himself have thought that it was most suitable to keep up the architectural tradition of the former building more or less, which was also a portico building. Internally the house is generally admitted to be one of the best structures for its purpose in existence, comfortable, well arranged, and admirable in its acoustic properties. In regard to the latter point we have often noted its excellence, especially, for example, on the occasion of a performance of Rossini's "William Tell," when the fisherman's song, sung from a "practicable" boat at the very back of the stage, by a singer not possessed of any great power, was heard quite satisfactorily from the opposite side of the house. The internal decorative treatment we cannot much sympathise with; what can be fairly said for it is that it follows the usual run of theatre decoration while avoiding extravagance or vulgarities. The two large hotels at Charing-cross and the Strand are among the most important and familiar objects in Central London, and, as hotel architecture, possessed of a great deal of merit and suitability. The classification of the various stories is well carried out in the Cannon-street Hotel; we have a ground story with rusticated piers; the first-floor with mullioned and transomed windows, with ornamented pilasters between them; the second-floor with similar windows with triple clusters of columns, or rather shafts, between them, the treatment here being really, to a great extent, Gothic in feeling; and then we have the third floor forming a light arcade of coupled windows. In this progressive arrangement of stories we see some of the best lessons of Italian Renaissance architecture carried out with a good deal of spirit and novelty. The drawback, to our thinking, both in this and "Temple Gardens," a building which we illustrated last year, and which will always be a conspicuous object on the Thames Embankment, is in a certain want of reticence, a too "handsome" appearance, which may be admitted to be in keeping with such a building as the modern Grand Hotel, but which in the Temple Gardens building may be thought a little out of keeping with the situation and its associations. The building for the Art-Union, in the Strand, which we have already illustrated and commented upon, and which is in a more purely Classical style, has not this defect, and is not by any means too ornate for its purpose and situation; the detail in this is very carefully studied, and the upper story is particularly happy in treatment; it is, however, somewhat too massive in style for the story immediately under it, which latter is very elegant in itself, but hardly forcible enough for the superstructure. The hospital for children in Great Ormond-street is a very suitably-treated building externally; and the chapel, for which a special bequest was made, is a very successful example of a highly-decorated interior, in which the rich effect, which some might think is carried too far for the occasion, is however in keeping with the intention of the donor of the funds. The Birmingham and Midland Institute, which is one of the architect's less showy and more quietly dignified designs, is very pleasing and suitable in its Classic design, and very much recalls the manner of Sir Charles Barry. Some of the mansion designs of Mr. Barry, especially those which consist of additions to already existing houses, also recall Sir Charles's manner of treating such works, which is about the highest praise that could be given them. In others of his domestic designs, such as Wykehurst, Mr. Barry seems to have been rather in search of a style, and wavering too much between Gothic and Italian feeling to produce a quite homogeneous effect, or to satisfy the advocates of either manner of treatment. In the restoration and rebuilding of Crewe Hall, on the other hand, Mr. Barry more than satisfied those most concerned, and we think they had very good reason to be satisfied. On the occasion of a dinner to celebrate the completion of the renewed building, Lord Houghton (no mean judge of æsthetics) made a most complimentary speech in regard to the manner in which the work had been carried out by the architect, who was one of the party on the occasion.

Halifax Town-hall, which, as originally designed, was the work of Sir Charles Barry, and one of the best and most original of his productions, was entirely carried out by his son, with some modifications in detail, but preserving the highly original tower and spire intact. In referring to Mr. Barry's Gothic work, we should have mentioned the decoration of St. Stephen's Chapel, a piece of decoration most admirably and carefully carried out, and which really might pass for the work of an architect whose taste and study had been specially given to Gothic. Mr. Barry appeared also to great advantage in his treatment of small works of a decorative nature, as shown in the Palace Yard railings and other ornamental iron work, such as the railing to the inclosures adjoining New Palace Yard, which is a very novel and effective bit of ornamental ironwork, and the Crewe Hall gates; and his design for a tomb for the Berens family in an Italianised Gothic style is, in every way, an excellent specimen of monumental design.

We have not yet named, however, the design upon which, if it had ever been executed, which it unfortunately has not been, Mr. Barry's fame would undoubtedly have chiefly rested,—the New National Gallery. The history of this design exhibits another example of the disappointment and unfair treatment from Government which seems to have been handed down as an unhappy legacy from father to son. Mr. Barry was offered consolation for the manifest injustice done to him in the matter of the Law Courts, by the offer of the National Gallery; but, eventually, this also was withheld in great measure, and, instead of the chance of executing a great building which would have been worthy of "the finest site in Europe," he was reduced to the task of merely carrying out additional rooms, of considerable extent, but with no alteration in the frontage. As picture-galleries, these rooms are admirable, and there is a generally dignified and *grandiose* air about their treatment; at the same time, we must honestly say that we regretted from the first that the decoration employed displayed so little of originality, so little beyond what could be found in any book of Roman detail, and it cannot, in this respect, be held out as entirely worthy of the occasion. But the exterior design for the rebuilding, considered as a whole, was a grand conception; it combined, in the most fortunate manner, Classical grandeur and symmetry with picturesque effect; it supplied opportunities for the most impressive internal effects, as well as for advantageous display of various schools, and splendid opportunities for the exposition of sculpture; and we have no hesitation in saying that if it had been carried out it would have been one of the most effective and one of the most universally-admired buildings of this century, not only in England, but in Europe. It is but the merest justice to Mr. Barry to remember this; to remember, in judging of his architectural fame, that he was deprived of the opportunity of doing by far the best thing that he ever designed, and that it is only fair to judge him by what he would have done if he had had the opportunity, as well as by what he has actually accomplished in the face of many vexatious difficulties and disappointments.

THE following is a list of works designed and for the most part carried out by him:—

1855-56. St. Saviour's Church, Haverstock-hill.
1856-57. Birmingham and Midland Institute (obtained in competition).
1857-59. Leeds Grammar School (the chapel, &c., completed in 1863-63).
1857-58. Royal Italian Opera House, Covent-garden.
1858-59. The Floral Hall, Covent-garden.
1858 to 1868. Henham Hall, Suffolk (extensive alterations and additions); Tomb for Mr. Berens, Norwood Cemetery.
1859. Duxbury Hall, Lancashire.
1859-60. St. Giles's Schools, Endell-street.
1860. Burnley Grammar School (design only).
1860-63. Halifax Town-hall, from designs by the late Sir Charles Barry, R.A.
1861. Birmingham Free Public Library (being a completion of his design for the Birmingham and Midland Institute carried out in 1857).
1861-64. The New Opera-house at Malta.
1861. Additions to Gawthorpe Hall, Lancashire.
1862. Pyrgo Park, Romford (extensive alterations and additions).
1862-63. Barbon Park Lodge, Westmoreland.
1863. Stabling, for the Speaker of the House of Commons, at Millbank.
1863-65. Charing Cross Hotel and Eleanor Cross.
1864-65. Star and Garter Hotel, Richmond (extensive alterations and additions after the fire).
1864-66. Cannon-street Hotel.
1865. Schools at Canford, Dorsetshire (designs only).
1866-68. New Palace at Westminster (formation of covered arcade in, and enclosure of, New Palace-yard; formation of St. Margaret's-square; restoration of St. Stephen's Crypt).
1866-71. Crewe Hall, Cheshire (restoration after the fire, with very extensive additions).
1866-69. New Palace at Westminster (completion of Queen's Robing-room, of Royal Staircase, and decoration of Central Octagon Hall).
1867. Bridgewater House, London (completion of the picture-gallery).
1867-68. Bakeham House, Egham.
1867-69. New Palace at Westminster (design for a

new House of Commons &c., and formation of subway, New Palace-yard to the Thames Embankment).
1869-71. Thorpe Abbotts, Norfolk (alterations and additions).
1869-72. Sudbury Hall, Derbyshire (designs only for alterations and additions).
1870. Esher Lodge (alterations).
1870-73. "Shabden," Surrey.
1870-73. "Cobham Park," Surrey.
1871-72. Bristol Corn Exchange (new roof to area).
1871-74. Fitzwilliam Museum, Cambridge (completion of grand staircase).
1871-74. "Wykehurst," Sussex.
1871-75. New National Gallery Picture Galleries (being part of his competition design).
1871-76. Hospital for Sick Children, Ormond-street.
1872-74. Clifton Church, near Manchester.
1873. London and Westminster Bank, Temple Bar (alterations and additions).
1873-75. Downing College, Cambridge (alterations and additions).
1874. Pulpit, Peterborough Cathedral.
1875. Royal Infirmary, Waterloo-road (alterations and additions).
1875-79. Buildings on the Thames Embankment for the Society of the Inner Temple.
1878-79. Peakirk Church, Hermitage (restoration).
1879. Stancliffe Hall, Derbyshire (additions and alterations).
1879. Home of the Art-Union of London, Strand.
Besides several works—public and private—in course of execution at the time of his death, or for which designs have been prepared by him for execution.*

We have now simply to add that the remains of our eminent colleague were interred on Tuesday last, the 3rd inst., at the Paddington Cemetery, Willesden. The Rev. Canon Barry brother of the deceased, officiated in the cemetery chapel, and at the grave. The six pall-bearers were Sir F. Leighton, the president, and Mr. Pickersgill, the keeper, of the Royal Academy; Mr. Whichcord, the president, and Professor Hayter Lewis, vice-president, of the Royal Institute of British Architects; Mr. A. B. Mitford, the secretary of Her Majesty's Office of Works; and Mr. W. H. Barlow, the president of the Institution of Civil Engineers. The mourners who followed the coffin from the house in Oxford-square, were Mr. L. E. Barry, the only son; Mr. Charles and Mr. J. W. Barry, brothers; Mr. W. H. Barry, cousin; and Mr. C. E. Barry, nephew of the deceased; Lord Crewe, Sir H. A. Hunt, Rev. E. James, Dr. Tweedie, Mr. Cattley, Mr. Neate, Mr. Horace Jones, and Mr. Plucknett. The following members and associates of the Royal Academy, in addition to the President and the Keeper, attended at the cemetery:—Messrs. Dobson, Horsley, Marks, Shaw, Street, Alma Tadema, Yeames, Fildes, Pearson, Prinsep, and Waterhouse; also Mr. Eaton, the secretary of the Academy. Amongst the members of the Institute of Architects, and others who were present in addition to those already named, we noticed Messrs. Penrose, Currey, I'Anson, A. W. Blomfield, M'Vicar Anderson, A. Cates, Ewan Christian, J. Clarke, John Gibson, J. L. Pearson, William H. White, O. Hansard, T. H. Wyatt, Matt. Wyatt, R. W. Edis, S. F. Clarkson (President of the Architectural Association), R. C. Page, C. Fowler, C. F. Hayward, J. Brooks, E. H. Burnell, J. Edmeston, Geo. Godwin, H. Parsons, Thos. Porter, Dr. Phené, E. H. Martineau, G. A. Dunnage, P. G. Smith, R. P. Spiers, J. Norton, G. H. Herbert, Jas. Forrest, J. G. Crace, J. D. Crace, Perry, S. Weil, J. Honeyman, J. W. Penfold, &c.

* In our volumes for the years indicated will be found illustrations of many of his works, viz.:—
1855: pp. 566-67, Midland Institute, Birmingham.
1857: p. 611, Royal Italian Opera House, Covent Garden.
1858: p. 355, Royal Italian Opera House, Covent Garden; p. 779, Tomb erected for Mr. Berens, in Norwood Cemetery.
1859: pp. 236-37, 269, Royal Italian Opera House, Covent Garden.
1860: pp. 40, 41, Halifax Town Hall (designed by Sir Charles Barry, but finished by his son, Mr. E. M. Barry).
1861: pp. 88-9, Floral Hall, Covent Garden; pp. 818-19, St. Giles's National Schools, Bloomsbury.
1863: pp. 314-15, Opera House, Malta; p. 791, Interior of Halifax Townhall (designed by Sir Charles Barry, but finished by his son).
1864: p. 513, St. Stephen's Crypt, the Chapel of the Houses of Parliament, as restored under Mr. Barry's direction.
1866: pp. 760-61, The City Terminus Hotel, Cannon-street.
1867: pp. 112, 191, Design for the New Law Courts; pp. 370-71, Design for the proposed New National Gallery.
1868: p. 29, Cloister at the New Houses of Parliament, with iron railings and gates enclosing and completing New Palace Yard.
1869: pp. 486-87, Crewe Hall, Cheshire, as restored and enlarged after destruction by fire in 1866.
1872: pp. 66-7, Hospital for Sick Children, Great Ormond-street.
1873: pp. 626-27, Shabden (a country house) near Reigate.
1874: p. 352, Pulpit in Nave of Peterborough Cathedral.
1876: pp. 737-39, Additions to the National Gallery; pp. 1073-75, Chapel of the Hospital for Sick Children, Great Ormond-street.
1878: p. 486, Gates for Crewe Hall (exhibited at the Paris Exhibition).
1879: pp. 19-21, House for the Art-Union of London, No. 112, Strand; pp. 654, 656, 1344, New Chambers in the Temple,—"Temple Gardens."

E. M. B.

(A WREATH.)

No more, no more! the lips are seal'd for aye,
Closed are the eyes, and still'd the anxious heart;
He look'd ahead, and smiled on yesterday,
Working withal to eternise his art.
Friends grasp'd his hand, and thoughts in unison
With theirs he held, and truthfully express'd.
Ah me! that such a life so well begun,
With more than half the battle bravely won,
Should be eclipsed at noon and sink to rest!
So be it, though how sad to feel 'tis so,
And thinking of that home now draped in gloom,
To tell the worth and loss, dear friends best know,
Who watch'd his name and fame in bud and bloom,
And sorrowing now pay homage at his tomb.

THE PAST AND FUTURE OF THE CLASSIC ORDER.*

The Classic order, on its arrival in other countries of modern Europe, did not find quite such virgin soil on which to take root as in its native resuscitated Italy. In the countries where the Mediæval style had hardly yet breathed its last, the Classic interloper had to accommodate itself to circumstances, and edge in where it could side by side with the last remnants of Mediæval detail. This gives a peculiar interest and piquancy to early Renaissance buildings, or buildings mixed with Renaissance detail, in France and England. The pilaster takes its place timidly and doubtingly between the still mullioned and transomed windows; and considering from what different sources the two features are derived, it is really remarkable how well they seem to assimilate. Some of the most successful attempts at novelty in contemporary French and German architecture (and occasionally among ourselves) have consisted in the same kind of combination, with details essentially modern and differing from those of early Renaissance. Nothing like flowing or cusped tracery could go well with the intermediate pilaster,† but the straight mullion harmonises with its lines, and the two seem mutually to help each other, quite as much when the pilaster has assumed an almost strictly Classic form as in those earlier types, in this country especially, where it was partly Gothicised, as by the Elizabethan designers, and made into a picturesque rather than a Classic feature. The picturesque general effect of these more Gothicised Elizabethan buildings every one admits; but those in which the more Classic pilaster has developed are on the whole the most refined and the most pleasing. The subsequent development of pure "order" architecture never assumed the same academical completeness and correctness in France which it did with many of our own architects. But, on the contrary, it received there a good deal of richness and originality of treatment, such as we have rarely had equalled in our own country. The French Renaissance architects made a great deal of, if they may not have the credit of inventing, the rusticated column and pilaster, and though this employment of rustication is somewhat doubtful from the point of view of a pure taste, it is certain that the use of it did enable some of the French architects (as Delorme, in his portion of the Tuileries) to combine the attached columns with the mass of the building, and to avoid that cabinet-work appearance which we have censured in a good many of the Italian Renaissance buildings, and combine the order with the masonic structure, in a very satisfactory and truly architectural manner. Later French Renaissance dropped more into the cabinet-making style, where the order was used, though still showing often a very satisfactory combination of force of effect with richness and elegance of detail. The French architects had also sense and taste enough to see the fitness of treating a Classic mansion with cornice and rustication only,—a style of architecture which they carried out with considerable elegance and variety, though not with quite the breadth or power of the Florentine palaces. Among English architects, almost the only one who achieved the same kind of powerful and truly architectural handling of Classic materials which marks the work of Delorme, was Inigo Jones, who, certainly, is great not so much for what he actually did as for what he gave us reason to think he could have done if he had had the opportunity; but in a few of his scattered details, such as the front of St. Paul's, Covent-garden, and the York Steps Gate (believed to be by him), he has left that peculiar and not easily definable impress of power which suggests that we might have had a truly remarkable building from him, had his great scheme of a much larger Tuileries for London been carried out. Vanbrugh shows occasionally the same kind of power in masonic design, though marred by many faults of manner; Wren shows it hardly ever, his manner is that of elegance and refinement, but not of power. There was little new done with the orders in England, beyond what had been done in Italy; but the vacillation of habit as to their employment is curious, and shows how much Renaissance architecture in this country, more than in any other, was under the influence of the personal tastes of individual architects; every now and then there is a sort of revival of pure "order-worship" (on the part of such a man as Chambers, for instance) in the midst of a time when it had rather fallen into abeyance; but when the orders are introduced, it is nearly always with a very strict regard to academical accuracy.

The remarks in the preface to Campbell's "Vitruvius Britannicus," show how strong was this academical feeling about architecture in the early part of the eighteenth century in this country. Campbell there observes that Palladio seems to have reached "the *ne plus ultra* of his art. With him the great manner and exquisite taste of building is lost, for the Italians can now no more relish the antique simplicity, but are constantly employed in capricious ornaments which must at last end in the Gothic." He instances, and very rightly, the extravagance and vulgarity of Bernini as an example how low the Italian school had fallen from the dignity and gravity of Palladian architecture; even the pedantry of Palladio was certainly superior to the licentiousness, as we may call it, of Bernini; though the idea of Bernini being the road to the adoption of Gothic is amusing enough, and shows how utterly different was the idea conveyed by that word to the eighteenth-century architects from that which it has to us now.

Chambers, however, deserves perhaps to be exempted from the censure of extreme academical taste, from the charge of mere servile reproduction, which may fairly be made against most of the English Renaissance architects of his century. His work on "The Decorative Part of Civil Architecture" is well worthy of remembrance for the fine manner in which the illustrations are chosen and executed, which will make the book always a worthy addition to the architect's library; and the letterpress is characterised by admirable literary style and a great deal of real refinement of criticism; and though, of course, Chambers regards "the orders" as a sacred institution, he has not that blind belief in all the examples even of antiquity, still less of the Renaissance period, which characterised some of the later Classic architects. Some of his remarks on the treatment of the composite and Corinthian orders illustrate the careful consideration which he gave to his work. He recommends that where Composite and Corinthian are used one over the other (a favourite device in costly and ornate buildings, as we all know) the Composite should be used as the lower order, as being more massive in its effect than the Corinthian, and therefore fitter for the lower story; and on this ground he opposes what appears to have been a favourite view with some of the Classic authorities, that the Composite order should be used last or highest in the building, because it is the last in its evolution in point of time, being compounded of a union of the Ionic and Corinthian. On this principle the correct treatment of a three-story ordered building would be to use the Ionic on the ground-story, the Corinthian on the second story, and then combine them both in the Composite on the third story. But we opine that Chambers's theory is the more correct. The Composite order, after all, never really asserts itself as a union of Ionic and Corinthian; it im-

* See p. 119, *ante*.

† The Vandramini Palace is an exception, and on the whole a successful one; but the tracery in this case is entirely without Gothic character or anything like the spontaneous flow of Gothic tracery; it is quite Classic in its formality.

presses the eye as a somewhat heavier and richer Corinthian, and Chambers notes that Vignola and Serlio both concur in giving to this order a heavier and more monumental character than the Corinthian. Chambers remarks upon the designing of a Corinthian capital, as to the disposition of the leaves, that the lower leaves should on no account start from a plane at all overhanging the plane of the shaft of the column, for "nothing can be uglier; neither are these leaves as they mount to bend forwards, *as in many of the antiques* * and some modern buildings, because they then hide a considerable part of the upper row of leaves, and give a stunted disagreeable form to the whole capital." This shows that Chambers studied the effect of his details *in situ* as well as on paper; and he gives a few particulars in connexion with the same subject, showing the careful manner in which the design and execution of the capitals for Somerset House was carried out. His work altogether gives us the idea of his being a highly-cultivated, thoughtful, conscientious architectural designer, in spite of some of the curious things to be seen among the illustrations, columns with rusticated rings round them to about half their height, and then a length of plain shaft, as if some of the rustication courses had fallen away or been stolen, a single ring of it, however, being left one course beneath the necking, and so on.

The turning over of such a collection of designs as the "Vitruvius Britannicus" shows forcibly and rather painfully to how tame and uninteresting a thing architecture had for the most part been reduced in the later Classic period in England. It is true the illustrations are very inferior to those of Chambers in regard to execution; but, omitting a few of the well-known designs of Wren and Inigo Jones, the type of thing mostly illustrated here is dead and dull to a degree. The orders in the works illustrated in this book are mostly confined to use in a big central portico (that peculiarly English fashion of mansion-designing), the wings left flat and nearly featureless; there is one design or "invention," as he phrases it, of Campbell's own, "in the theatrical style," which appears to mean orders employed one over another in stories in the form of pilasters, *à la* Alberti. Eastbury, Dorsetshire, is a house with a quasi-Doric portico with columns unfluted and rusticated, not by the interposition of square cubes, but by heavy channelling of the joints round the circular shaft. In spite of its heaviness, there is a certain power about this which is a relief in contrast to the cold tameness of most of the designs. The Renaissance in England reached its nadir in the work of the Adams, who have been so absurdly talked of and praised of late years, and who were simply good furniture designers, their architecture being altogether more purely cabinet-makers' work than anything that had been previously seen. They volunteered the idea that the employment of the orders did not pre-suppose absolute subservience to rules or forbid piquancy, variety, and playfulness; and in this they were, no doubt, in the abstract right; but the way they proceeded to exemplify their theory of liberty in the treatment of the orders only makes one wish they had rather been as coldly and academically correct as was possible.

At the present moment the Classic order is still exercising a considerable sway, though in this country it has had a period of comparative collapse of late years. There has always, indeed, been a faithful band who, through evil report and good report, have clung to the orders as the only salvation of an architect, and who have gone on doggedly producing the same things by the same rules throughout all the changes of style that have gone on around them. These are not, however, the men to whom our modern architecture is most indebted; though these faithful adherents have usually had the gratification of finding that "the orders" are good paymasters, and so far bring reward to their servants. Hardly anything, in fact, pays better than a stone building with a big order, where each column and capital adds a great lump to the expenditure, without entailing any more work on the architect than the first column; and that, with all its appurtenances, can be copied out of a book, and, in fact, is seldom regarded as quite safe and unorthodox unless it is so copied. We have seen the effort, during the last generation of architects, to have something new on the astylar Florentine type of Classic building, and Barry's achievements in this way are among the most original and successful adaptations of Classic materials that have ever been made. There is now a kind of general dabbling in Classic detail going on again, but it is a method of dealing with the materials in which originality is sought for by the adoption of the worst and weakest forms into which late Renaissance feeling corrupted the column, pilaster, and entablature, and by the frequent misapplication of such forms in situations where they can have no meaning whatever. There is a talk that this is the prelude to another Classic revival; and it is at least satisfactory to perceive by this talk that those who are carrying on this bastard style at present do not imagine that they have already accomplished such a thing as a Classic revival. If there were to be such a revival, and it were to lead to anything, this would not be by taking the orders to bits and using up corrupted forms of their details in illogical companionship. It would rather be by a reconsideration of the principles on which the original orders were designed, and the manner in which they were employed, and an attempt to adapt the typical forms of their decoration in some degree to our own climate and to new materials, instead of blindly using up Corinthian capitals of the orthodox type over and over again. The Greek order is the most elegant and logical manner of designing supports for a trabeated construction which has ever yet been invented by architecture, and in fact it has, through its excellence and suitability, approved itself so much to the building portion of mankind, that it has practically come to be the universally accepted type, with only non-essential modifications, whenever this form of architectural expression is called for, and in thousands of cases where it is not called for; where the mere liking for its forms, or the fact that they are the best things that can be got without the trouble of inventing, has induced their adoption. We cannot suppose that a feature which has taken such an important place in the Pantheon of architecture can be all at once bowed out and got rid of. We shall long, perhaps for ages, be influenced by the Greek order; and its influence will be likely continually to recur, even after intervals of neglect. The business of architecture in dealing with this great feature in time to come is, not wilfully to spoil or misuse it for the mere sake of a supposed originality (which often means only eccentricity), but to add to its logic a still more exacting logic; to use it, not as a wall ornament, but only where columns are required to carry something; and to reconsider its details thoughtfully and carefully,—not capriciously,—in relation to the materials and the climate in which we have to make use of it. In such considerations, and the modifications of detail to which they would lead, there might be matter for great interest and for really new combinations, provided always that the alterations and modifications of detail should really be inspired by the effort to render the column and the entablature more suitable and expressive for the circumstances under which they are employed, and not by the mere desire to tamper with them for the sake of alteration and the demand for what is supposed to be originality. The praise implied in that word can only be claimed by alterations and novelties which are the result of genuine thought applied to the solution of a problem arising out of new circumstances; under any other conditions what is sometimes called originality deserves no better name than eccentricity.

* The italics are our own. It is evident from this that Chambers by no means held himself bound to worship "the antique" indiscriminately.

The Larkin Monument.—In the accepted design for this monument the lower portion consists of a broad base arranged in steps, on which is placed the superstructure. This is intended to be in three stages. The first stage is solid, with sunk and moulded panels in all four sides, with panelled angle pilasters carrying a dentil cornice surmounted by pediments. The second stage is open, with grouped and fluted Ionic columns at the angles supporting a pedimented canopy, beneath which, on a carved and moulded pedestal, will be placed a bust of the deceased orator, to whose memory and honour the monument is to be erected. Above the canopy, and surmounting the whole, is a large cornea and moulded urn. The design is by Messrs. Oliver & Leeson, architects. The execution of the work has been entrusted to Mr. George Burn, of Newcastle.

ARCHITECTURAL LECTURES:

BY THE LATE PROFESSOR E. M. BARRY, R.A.

ARCHITECTURAL ORNAMENT.*

HAVING previously dealt with some of the most important technical principles of architecture, we now approach those parts of her province in which taste rather than reason rules supreme. We found in our previous inquiry that a work of architecture should produce, as far as may be possible, the effect of size, stability, and sound construction, and that to ensure this result, certain technical considerations should be present to the mind of the architect in preparing his designs. To these elements of architectural effect he must further add ornament, not necessarily decoration, but well-considered ornamental construction, showing itself in the general forms as well as the particular details of his work.

Before we pass altogether away from the consideration of the technical rules of architecture, it may, however, be desirable to pause for a short time in order to examine one other point affecting our art, viz., Proportion,—a matter obviously of great importance, and which is not included in any of the principles to which I called attention in my previous lectures.

Now proportion in an abstract sense is one of those upon which every one feels competent to pronounce an opinion. We know how readily we declare our judgment that anything, from a great building to a teacup, is well proportioned or the reverse. We have, in fact, certain canons of taste acquired intuitively and stored up in our minds which we apply (not always rightly, of course) to this question of proportion. It is not that any particular form is good and another bad in itself, for, under different circumstances, the same form may be both one and the other, but that we have, from associations, brought ourselves to an unexpressed conviction on the subject of proportion which we, or some of us at any rate, are slow to express on any other subjects which we have not specially studied.

The reason of this confidence may, perhaps, be found in the reflection that our ideas of proportion are based on our acquaintance with the human figure. Nature, in that case, teaches us the science of proportion, and we apply her lessons to the artificial productions of art. It is in this way that we find ourselves attributing to the Doric order the masculine attributes of sturdy strength and vigour, while the Corinthian indicates feminine grace and appropriate decoration. In architecture, when proportion is mentioned, it may be considered under two heads: first, as it appears to the instructed, and, secondly, as it appears to the uninstructed, observer. To the first, proportion will mean much more than to the last. It is not sufficient for him that a building should please as a whole. He knows what should be the relative size of every detail,—what ratio the base should bear to the shaft, the shaft to the capital, and so forth. Any departure from recognised rules is to him a solecism and an offence; it is like a false quantity to a scholar, a *lapsus linguæ* to an educated man. The ordinary and not specially instructed observer sees none of these things. It is nothing to him whether a Grecian Doric column be used with a base, or a Corinthian column without one. The relative proportions of mouldings to each other have no significance for him, nor does he appreciate the differences of style which strike at once the more educated critic. Nevertheless, he will tell you whether a building is, in his opinion, well or ill proportioned, and on such a question the popular judgment is seldom wrong. We may conclude, therefore, that there is a science of proportion, and that some perception of this important element of success in architecture is innate in the human mind, just as a sense of harmony may exist without any technical knowledge of music. Proportion thus assumes a position of great importance in architecture, and deserves attentive consideration at our hands.

Many rules have been propounded for determining what is and what is not good proportion; thus it is suggested by Mr. Fergusson that the height of a room should be equal to half its width, plus the square root of its length. And, again, that the best Gothic architects based their proportions on the equilateral triangle. I must confess, however, that these and other similar *dicta* have not carried conviction to my

* The following is the first half of the lecture, the fourth o the series, which would have been delivered by Professo Barry at the Royal Academy on the 29th ult. but for his untimely death.

mind, though some merely conventional rules may be found in practice to secure agreeable results. A satisfactory proportion of a room may, for example, be obtained by first deciding the width, then drawing a line from one of the corners, so as to form a triangle, and making the length of the room equal to the line so drawn, being the hypothenuse of such triangle. I do not, however, propose now to discuss the difficult question of proportion, as applied by arbitrary rules to plans of buildings. I rather wish only to point out here, first, that good proportion is a recognised necessity in architecture, and, secondly, that it rests upon certain principles which cannot be departed from with impunity. The eye soon learns to accept such principles, and, as a general rule, any unusual proportion, whether of length, width, or height, is found objectionable. It is impossible, however, for an architect always to proportion his designs according to rule, nor would it be at all desirable that he should do so. Great effects are often produced by genius, notwithstanding the disregard of rules; and in spite of rules which serve to guide ordinary cases, the limits are wide within which freedom of action may be practised. During and after the days of Palladio and Vignola, the proportion of every moulding to be used with the five orders was discussed and settled as if it were a matter of exact science, and as if nothing should be left to the skill and discretion of the architect in individual cases. In Mediæval days proportion was not subjected to such definite rules, or at least no record of them can be discovered, but it seems clear, from the remarkable similarity of principle which is found in the works of the time, that a science of proportion was recognised and carried out with more or less precision. Thus we find the width of our cathedrals almost always divided into three parts, with a central nave and two aisles, and the walls of the centre division composed again of three distinct features, viz., the nave arch, triforium, and the clearstory. Various proportions were given to these parts of the design, but from a comparison of the best specimens, something like the following rule of composition may be deduced:—The height of the aisle arch is half the total height of the nave, while the triforium and clearstory occupy the upper division. The latter may then be divided into three parts, one of which is given to the triforium, and two to the clearstory. Not only does this arrangement of parts appear reasonable and pleasing, but it establishes a system of proportion based on the numbers 1, 2, 3; and it has often been observed that a proportion which can be traced to a definite system, so that each part may be a multiple of each other part, is more satisfactory than one which admits of no such simple illustration. In a like manner, observation may show that uneven numbers will please in architecture more than even numbers. Other things being equal, a composition with three or five windows, grouped together, will produce a better effect than one with two or four. A flight of three steps is better than four, and one of five than six. A room will be more cheerful if it have a central window, than if there is a pier with the same amount of open space arranged in two windows, one on each side of it. In a panel of tracery, or a balustrade, an uneven number of divisions is to be preferred, which will allow the central space of such panel or balustrade to be occupied by a void rather than a solid. It would not be difficult to multiply examples of this class of architectural science which come under the general description of proportion. Experience and habits of close observation, fostered by the practice of taking careful measurements of existing buildings of high merit, will enable the architectural student to analyse this difficult science, and so prepare him to avail himself in his own designs of the experience of others. He may be sure of this, that unless a building be well proportioned, it will fail to please, whatever may be the merits of the detail of its parts. He cannot regulate the actual size of his work, as this must depend on site, cost, and other circumstances beyond his control, but he has the responsibility of so proportioning the parts of his design that difficulties may be conquered and deficiencies supplied. If he be fortunate enough to obtain the element of size by being entrusted with a large building, he must not throw away so great an advantage as has been done at St. Peter's. If, in the contrary case, he has to deal with small dimensions, he must make the most of them by even a more careful application of the science of proportion.

We may now proceed to take into consideration the subject of architectural ornament, and, to do so the better, will divide it into two heads, —constructive and decorative,—dealing first with the constructional part of the subject. Architecture as a fine art is essentially a decorative art, for she has to ornament the bare construction of works carried out for utility alone. A builder may erect a house square and comfortable, but it is not a work of architecture. It may be sensible in arrangement, warm, and weather-proof, but it has no beauty, and displays no art. The latter is shown in the application of ornament. Not, be it observed, in the mere addition of carving, colour, or whatever may be thought to be ornament, but by giving dignity and beauty to the forms of construction, and by subordinating construction to artistic feeling.

It is important to bear in mind this distinction. Many excellent persons seem to consider that any structure may be made ornamental by plastering it with so-called ornaments, as we cover a Twelfth-cake with sweetmeats. If a railway bridge be pronounced hideous, we are told that it is easy to make it sightly by spending money on bosses, panels, and cast decoration, and sticking all this on to the bald nakedness of the original design. No mistake can be greater than this. In architecture, we cannot separate the useful from the beautiful in this manner. In making his design, the architect must ever bear in mind how it is to be carried out, and in arranging his construction, he must remember from the first that it must please the eye as well as satisfy the conditions of stability. If the bridge be ill-proportioned or badly placed, no amount of applied decoration will redeem it from ugliness, or entitle it to be called a work of architectural art. If such a square builder's box as I have just mentioned is to be brought within such a definition by ornament, the ornament must be reasonable, and such as arises naturally from the circumstances of the case. A porch would thus be an ornament in this sense, or a projecting window. Chimneys may be broken into masses of agreeable aspect, or moulded into beautiful forms. The walls may be crowned with cornices, and the lines of floors marked with string-courses, or gables and dormer windows may break a too great plainness of roof. All these things are ornaments if rightly applied, and as such are among the legitimate resources of architecture. In private buildings, any added features, such as porches or bay windows, will owe their origin to their obvious utility; and if they are not reasonable, they will not be considered ornamental. For public edifices, dignity and impressiveness are also required, and so may justify the addition of ornamental features, for which usefulness cannot give a complete reason. Porticos, turrets, and spires may come under this definition, and we cannot afford to surrender such important elements of architectural design.

Decoration of necessary construction may also be seen in the contrivances of design which enable the architect to group together in a pleasing form necessary details such as windows. The Mediæval architects were masters in so doing, as we see by tracing their system of fenestration from Norman days to the latest Tudor. The simple lancet thus gave rise to the graceful triplet, and to the famous group of beautiful windows known as the Five Sisters at York. The elaborate tracery windows which were afterwards used were a development only of the system of grouping exemplified by these earlier specimens. We see also in the Italian Gothic palaces of Venice, as the Ça d'Oro, how much effect can be obtained by the simple expedient of grouping the windows together instead of dotting them all over the front with equal intervals between them. Nor were the best Renaissance architects backward in recognising the merits of this treatment. At the Farnese Palace at Rome the central loggie, though open to grave objections of detail, redeem the façade from monotony; and at the Vendramini and Camerlinghi Palaces at Venice the windows are so grouped as to be very pleasing. In modern architecture we have an instance at our doors of the satisfactory result of window grouping in the Travellers' Club-house in Pall Mall. In this example the contrast may be clearly seen of the two systems of uniform regularity and of partial grouping by comparing the elevation towards Pall-mall and that which faces the gardens at the back of the club-house. The former, while well proportioned and correct, has never roused enthusiasm, while the latter has ever been regarded with pleasure, and referred to as a success. Of the five windows of which the dimensions of the front allowed, three are gathered together so as to form a central group, while the other two windows are treated singly and placed about half-way between the centre triplet and the angles of the building. The centre assumes thereby an air of dignity combined with elegance, and gives a concentration of constructional decoration on which the eye rests with all the more pleasure from the circumstance that by grouping together three out of the five windows a greater plain surface of wall is obtained on each side of the central composition, the effect of which is consequently materially enhanced by contrast. Further examples of results equally satisfactory might be quoted from Transitional or Elizabethan buildings, such as Longleat House, in Wiltshire, where, in spite of great regularity of plan, advantage is taken of the internal distribution of the rooms to obtain variety by duplicating windows, and gathering them into bays. Enough, however, has probably been said on this illustration of the nature of architectural ornament constructively used. The use of columns instead of plain piers is another instance of decorated construction, the round or moulded form being more graceful than a simple rectangle, while being at the same time quite as useful. A column, indeed, is even more truly constructional in supporting a superincumbent weight than a pier of square section on plan; for, in case of any partial strain or settlement, the angles of the pier are the first parts to show signs of weakness and to disintegrate. The column, properly used, is, therefore, in such cases, an object of perfect utility as well as of beauty. How great that beauty may be made by the use of beautiful materials, delicate decoration, moulding, and carving, we all know from many a noble example. The column being constructional, its parts are so likewise. The moulded and projecting bases carry down the pressure to the ground, and cover an extended bearing surface, which, above the capital, either moulded or carved, spreads out to receive the lintel or the arch which requires support. Brackets are, again, constructional as well as decorative, serving, as they frequently do, as springers for vaults or supports for roof-beams or principals. An extended use of such features has become common in much of our modern revived architecture, and as there may be some temptation to exaggerate its use from the convenience it affords, it may be as well to suggest a word of caution on the subject. A corbel which is placed high up and near the roof, and over the centre of an arch, to carry the springing of a vault, has an obvious fitness, for no other detail would serve the required purpose as well. It is different, however, when we find a chancel-archway made of the greatest possible width at the floor level, while above, heavy groups of mouldings form a ponderous arch, resting at the springing on corbels of great projection, while, below them, we have possibly diminutive shafts, resting in their turn on smaller corbels. In such a case the corbel has not the obvious justification which applies to the other position just described, as it appears in the place of mouldings or columns which would discharge the duty allotted to it in a manner more truly constructional and satisfactory. The Mediæval architects made their corbels, as indeed they did all their construction, beautiful, as we may see, for instance, at Ely; but, to be beautiful, architecturally, there must be a good reason for their use. They will often be admissible when so placed that they cannot easily be seen in profile when they will appear to less advantage if brought inty great prominence, as in the position I have mentioned. They serve, in any case, to further illustrate the constructive element of architectural ornament.

We may now turn our attention to the decorative ornaments of our art,—the carving of strings, panels, capitals, and such like details,—which are not necessary except to satisfy the sense of beauty. A moulded capital will support a weight as well as or better than the same capital when carved, and the sculptor's art is, therefore, applied to architecture not as a necessity, but as a delight. The Greeks, and after them the Romans, confined their imitation of nature in works of architecture to such parts of the buildings as were not constructional, as to the pediments and metopes of the Parthenon, and from which the sculpture might be removed without any interference with the structure.

The capitals of the Parthenon are of the Doric order, undecorated with carving. The Ionic capital, though more elaborate, was strictly conventional; and the carving below it, which enriched this order, is an added luxury which could be dispensed with. The volutes are of so regular and formal a character that they are hardly entitled to be ranked with sculptured ornament, serving rather as a template or cushion to convey the pressure of the entablature conveniently on to the column. The Corinthian order of the Greeks has always been considered to have marked the period of decline of the best period of their art, and was used for structures of less dignity than temples. Even in the Corinthian capital, however, the purity of Greek taste forbade the employment of acanthus-leaves alone. The bell of the capital is seen through its ornamentation, and we feel that the latter might be entirely removed without loss to the stability of the building. These capitals have not the richness afterwards attained by the Romans, but they are more reasonable and appropriate to the purpose for which they are used, viz., to act as transmitters of pressure from the superstructure to its supports. In the best Greek temples the ornamentation apart from sculpture was derived evidently from the traditions of wooden construction. Thus the triglyphs represented the ends of the wooden beams of the roof, and the mutules the rafters, while the guttæ have been supposed to have been suggested by the drops of rain clinging to these projections. Whatever the derivation of those details, it is unquestionable that they give both decoration and interest to the order, and that with them the latter is independent of sculpture. At the same time, we cannot for a moment suppose that without the latter any building would be complete in the eyes of the fastidious art-loving Greeks. A temple like the Parthenon without sculpture is but the dry bones of perfect living art. Based upon reminiscences of wooden construction, it displays a visible roof unlike the temples of Egypt, from which some of its details may have been borrowed. The roof ends with pediments, an invention of Greeks, in which we may recognise the parent of the Mediæval gable, a feature destined to exercise so wide an influence on all sorts of architecture both public and domestic. It would have been easy for the Greeks to have hidden their roofs altogether, or to have hipped them back from the front, in which case, owing to the low pitch adopted, the influence of the roof would scarcely have been felt upon the front. Sculpture, however, particularly of the human figure, entered into every design of the Greeks, and for this, on a great scale, no position seemed so appropriate as the pediment. To this cause, therefore, in all probability we owe the invention of the Greek addition of pediments to the architecture handed down to them by Eastern traditions.

We find, then, in Greek architecture, few, if any examples, of sculptured construction. The latter was formal and regulated by precise proportions, and the sculpture, though of a high order, like everything of Greek origin, was an addition to the structure, and not a necessary portion of it. It was, however, from its exquisite character, the chief point of interest notwithstanding, so that the temple, though complete in a structural sense without it, was only complete in the same way that a framework destined to receive some work of beautiful art is complete, where the carpenters have left it in readiness for its precious burden.

Kitching's Memorial Cottage Hospital, Milnthorpe, Westmoreland. — A Cottage Hospital, to accommodate about twenty patients, is about to be built at Milnthorpe, near Kendal, in memory of John Kitching, M.R.C.S., who, after practising in South Audley-street, London, retired to Milnthorpe, his native place, where he practised for thirty years, and died May 26, 1879, aged eighty-three years. The hospital is to be built by his daughter, Mrs. Wm. Bindloss, and his sister, Mrs. Thompson Bindloss, as a memorial to him. The building will be built with limestone of the neighbourhood, with freestone dressings, and will form a neat and compact block of building. The situation is one of the finest in the neighbourhood; from the front may be seen Morecambe Bay, and the principal mountains in the Lake district. The plans have been prepared by Mr. Eli Cox, architect, Kendal.

INAUGURAL ADDRESS OF THE PRESIDENT OF THE SOCIETY OF TELEGRAPH ENGINEERS.

THE truth of the remarks which we made on the address of the President of the Institution of Civil Engineers has been yet more recently illustrated by the inaugural address of Mr. W. H. Preece, the President of the Society of Telegraph Engineers, delivered in the theatre at 25, Great George-street on the 28th of January. Of all the new departments into which industrial science is gradually dividing itself, none has more importance than that which relates to the use of electricity. The youngest-born child of human genius, electric science is the most rapid and portentous of the whole family in its growth. Of its future we can form no limiting idea. The first practical outcome of electric study, as we recently showed, was the protection of buildings from lightning. A pause followed, not in the study of the subject, but in the outcome of new results. Then it was discovered—almost by accident—that electricity afforded a method for conveying intelligence with the speed of thought itself. For more than a quarter of a century the vibration of a needle was the method used for this end, and very perfect in itself was that method. Its use led, among other things, to the invention of a new alphabet,—of a code which is almost as pregnant of mighty results as were the original sixteen mystic signs which the Greeks stole from the Phœnicians. For that code can be used without electric contact. Natural or artificial light can, by means of the Morse code, be so manipulated as to enable conversation to be carried on over miles of untrodden wilderness, or between the inmates of a closely beleagured fortress and a relieving force. This beautiful method has not exhausted the subject. Actual counterparts of writing, of signatures, of plans, can be produced at the distance of hundreds of miles by electric telegraphy. Hardly was this effected, before a new wonder succeeded. The telegraph gained a voice. The progress of the kindred inventions of the telephone, the phonograph, and the microphone, has been one of unprecedented rapidity. And it is not too much to say that we may, without extravagance, look forward to a time when no distance that can be measured on the surface of our planet will be so great as to afford a barrier to an interchange of thought between two friends, as intimate in its freedom as if they were only separated by a few yards of space.

With its future career as the great transmitter of thought thus magnificently indicated, electricity, next, has entered on a struggle with night and darkness. Here, too, the progress has been very rapid. In this country it has been chiefly to the activity of speculators that the public owe what they have heard of the electric light. Promise has hitherto much outrun performance; but performance has not slept. "The performances of the Brush light," said Mr. Preece, "were certainly the most advanced form that the electric light had yet taken. There were over 800 of these lights in the United States; and it is worthy of notice that it has quietly crept into existence without the aid of the ubiquitous and omniscient newspaper correspondent, or the transmission of any sensational telegrams to the detriment and discomfort of gas shareholders."

The desire to produce light has led to the careful and prolific study of dynamic electricity. Already it is the case that both the Siemens and the Gramme machine convert about 90 per cent. of the energy thrown into them into electric currents, a duty which no other kind of machine could show. Late researches, moreover, show that the loss of power by transmission may be in many ways reduced or counteracted. Nor do we think it unreasonable to anticipate that the utility of electricity as a transmitter, not only of thought but of power, may be hereafter so fully developed that the vast wasted energies of nature, such as the power derivable from the tidal flow, may be rendered as subservient to the daily service of man as is now the case with the fossil wealth of the coal-mine.

Mr. Preece speaks with authority. He has done good service to the country in this grand department of science. What he said on Wednesday, January 28, deserves careful study, both as a record of existing facts, and as a forecast of future progress. In the last year alone, he tells us that 11,400 nautical miles of ocean telegraph have been laid by commercial enterprise. The weekly number of telegraphic messages sent in the United Kingdom, in October, 1879, amounted to 586,000; on the average of the month, being more than double the average of October, 1878, which was the highest attained up to that date. The limit of the quadruplex system of transmission has now been reached, and the demands of internal intercourse will necessitate the laying of additional lines of wire in the ensuing year.

There were not a few subjects referred to in the address of Mr. Preece on which we have, from time to time, allowed ourselves to comment. It is eminently satisfactory to a public writer to have his own views confirmed by so high an authority. No one, as far as we are aware, out of our own columns, has publicly spoken so strongly as Mr. Preece as to the future of gas. For this product of the coal-mine Mr. Preece, like ourselves, predicts a great future, when it is put to its true economical use. "The proper function of gas," the lecturer remarked, "is to generate heat. Ninety-four per cent of the ingredients of gas are consumed in generating heat, and only four in producing light. It is remarkable that so available and tractable an agent for heating purposes has not been more utilised; but the fact is, that the public is ignorant of its properties, careless of its employment, and callous as to its defects. It is not too much to say that 50 per cent. of the gas manufactured is absolutely wasted for illuminating purposes by the extravagance with which it is burnt, and by the want of those systems of regulation which have been introduced to compensate for irregularities and excess of pressure."

Intimately connected with this question of the thermic value of gas, as so far superior to its luminous power, is a point to which Mr. Preece did not refer. Without prejudice to what may be or become the adaptability of electricity to produce light, there is, at this moment, a natural product which is as unrivalled a source of light as coal gas is of heat. We refer, of course, to petroleum. When burned in a lamp that adminsters to the flame the proper quantity of air, and no more, petroleum gives a pure light at a cost that can be approached in no other way. It is therefore with no ordinary interest that such a survey of the present and prospective conditions of the petroleum fields of Pennsylvania as was given by the *Engineering and Mining Journal of New York*, on 2nd of August last, should be regarded. (An abstract of the paper will be found in the forthcoming volume of the Minutes of Proceedings of the Institution of Civil Engineers.) Mr. H. E. Wrigley, the author of the paper in question, refers to the second geological survey of Pennsylvania, as showing the average life of all the wells that produce oil. This does not exceed two years and a half; and there is no known instance of an old pumped-out well being made to produce again to any extent worthy of note.

The great Huron shale is generally accepted as the mother rock of petroleum. The area contained between the eastern and western lines of boundary amounts to nearly 2,450 square miles; of which 1,620 produce light oil, and 830 heavy oil. More than 27,000 wells have been sunk within this area, of which 23,500 are within the ascertained region of oil, so that the yield has been fairly tested. At the extreme end of the Pennsylvania territory lies the northern, or Bradford, oil-field, covering an area of 210 square miles. The estimate of the total production of petroleum to the present time from these two districts is 126,000,000 barrels. But the part of the story which is not so agreeable is the estimate of the prospective production of the same district, which is only 76,500,000 barrels. It is to be hoped that the indications which exist in other parts of the world of the existence of this valuable mineral product may be so justified as to prevent anything like a petroleum famine,—at all events, in this country.

It is remarkable that at the very time that Mr. Preece's lecture has led us to call attention to the signs of limitation in the supply of the cheapest source of domestic light, news should be telegraphed from Berlin to the effect that the borings in the Hanover petroleum region have reached the depth of 600 ft, and that the existence in that country of a basin as large and as rich as that of Pennsylvania is now regarded as beyond a doubt by mining experts. The borings yield 4 cwt. per well per *diem*; the oil is becoming more and more inflammable; and the Hamburg and Bremen firms engaged in the speculation anticipate a European Pennsylvania.

THE EMPRESS OF RUSSIA'S WINTER VILLA.

When the enormous power exercised by the Czar of Russia is borne in mind,—when we remember that he exercises unlimited sway over the destinies of eighty million subjects,—it is not strange that great interest should be manifested in the personal surrounding of such a monarch. On reaching Cannes we were not, therefore, surprised to find every one discussing the condition of the Empress of Russia, and making pilgrimages to the Villa des Dunes, where the wife of the monarch who wields such power lived and suffered for so long. The presence of the Empress of Russia and that of the august visitors who have hastened to her bedside is the greatest event of this season. It has also been made the pretext for the display of much revolting snobbery. Great as is the Empress's desire for quietude, crowds of persons have spent hours gaping in at the closed windows of the Villa des Dunes, just as if by gazing at a stone wall or a wooden shutter they would raise themselves in the social scale. This snobbing nuisance, combined with the very justifiable fear of a Nihilist plot, has necessitated the presence of a number of soldiers and police round the gate and iron railing that separate the villa from the main road. It is impossible to deprive the public of the use of this thoroughfare, and therefore every one is at liberty to pass in front of the villa. On the other hand, no one may enter within its gates.

Considering the extreme gravity of the Empress's illness, we did not endeavour to gain admittance to the apartments inhabited by the Empress, but contented ourselves with obtaining the necessary information from the architect who is responsible for their construction. On the other hand, we did not hesitate to visit the neighbouring Villa Henri IV., where the Grand Dukes Serge and Paul and other members of the Imperial family reside. These two villas are situated side by side, facing the sea, and are among the most remarkable constructions of their kind at Cannes, and it was necessary to secure both these residences so as to satisfy the requirements of the numerous suite which accompanied the Empress. The Villa des Dunes, where the yellow flag with the black eagle floated to indicate the presence of the Empress herself, belongs to M. Charles Mallet, a Paris banker, and the President of the Administrative Council of the Paris, Lyons, and Mediterranean Railway Company. It was built in 1871, according to the designs and plans of M. Charles Baron, the architect, to whom Cannes is most indebted for its numerous and elegant residences. The ground on which it stands is slightly elevated, so that the villa dominates the neighbouring houses, and being situated on the portion of the beach which curves round towards the promontory of La Croisette, it does not face the due south, but rather the south-west. A footpath that describes a semicircle from the west, and a carriage-road from the east, lead up to the grand portal of the villa, and nearly opposite this, the principal entrance, is the porter's lodge, a graceful cottage with stable and coachhouse on the ground-floor, and a carefully-flagged yard.

If viewed from the Boulevard de la Croisette, it will be seen that the villa is built on an elevation of 20 ft. to 30 ft., and the whole enclosed by a wall, which helps to sustain the earth on which the building rests. The ivy creeping over this wall conceals the masonry, and its summit is ornamented with Etruscan vases in white marble, which produce a striking effect of colour, side by side with the leaves of the exotic plants, the foliage, the flowers that bloom and glitter on all sides. The portion of the wall facing the sea and the road is of course reduced in height, and surmounted with handsome iron railings, bearing in the centre the inscription, "Villa des Dunes," written in large gold letters.

The villa consists simply of a basement, a ground-floor, and an upper floor. The latter is covered by a large terrace, surrounded by balustrades and ornamented by Etruscan vases. The general style of the structure is purely Italian, which may be termed the native style, and is naturally considered the most suited to the climate of the Riviera. The architecture is of the greatest simplicity; there are three windows on either side, and seven in the back and front. They are large noble-looking windows, and the colouring of the white stone, imported from Arles for the façade of the villa, is very pure. The other portion of the house is built with the calcareous products of the immediate neighbourhood. In a word, it is a handsome, useful, well-built, simple villa, with no great pretensions as to style or grandeur. There are many villas at Cannes that look more like a royal residence, and indeed the neighbouring Villa Henri IV. is far more effective in style, and, in fact, more remarkable as an architectural achievement, with its columns, its portico, its arched roof, and third floor.

The principal entrance to the Villa des Dunes is on the northern side, and is protected by a large glass verandah. The steps leading up to the double doors of the hall or vestibule are ornamented by two handsome candelabras. A corridor, to the right and left of the vestibule, gives access to all the rooms, and is lighted by an easterly and a westerly window, a simple and practical contrivance. It would be difficult to lose one's way in the Villa des Dunes. To the right of the vestibule or hall, a door gives on to the principal staircase, while opposite, another door gives access to the servants' staircase and the steps leading to the basement. At the further end of the hall, and facing the entrance, was situated M. Mallet's billiard-room, which the upholsterers have converted into the Empress's study. Photographs of this room, with its soft, well-padded furniture, are sold all over Cannes, and it seems as if each chair would make a bed, so great is the comfort suggested by the aspect of this furniture. But the door giving on to the hall has been condemned, on the ground of the draughts and cold it might admit. This study and sitting-room combined is reached from the Empress's boudoir and bedroom, which are side by side, and face the south. From the study a door leads to the terrace in front of the house, where the Empress could have sat out under the shade of four fine pine-trees, and contemplated the magnificent panorama, with the blue Mediterranean and the old town of Cannes in the foreground, and the erratic peaks of the Esterel range of mountains meeting the horizon in the distance. Looking towards the east the Villas Faustina Marina and the curve of the road impede the view. To the left of the study is the drawing-room, with two windows to the south, while the dining-room has an easterly aspect.

The staircase to the first-floor is of oak, and consists of thirty steps, and the general plan of the upper-floor is the same as that below. The rooms with a southern aspect were reserved for the Baronesses Pillard, de Malgoff, de Kagbiskoff, and Lady Kudykoff, all ladies-in-waiting to her Majesty. The rooms looking to the north were inhabited by the servants and waiting-maids, while the eastern side, comprising two rooms lighted by three windows, has been converted into a Russian chapel.

The garden is comparatively small, and cannot for a moment be compared with the gardens of, for instance, the Villa Vallombrosa, the Villa Scott, the Château de St. Georges, the Château de Bocca, and other remarkable residences of Cannes. Indeed, to increase the size of this garden, M. Pilar, who inhabits the neighbouring Villa des Sablons, has offered her Majesty the key of a door that gives access to his garden. The critical condition of the Empress's health did not, however, admit of her deriving much advantage from this act of courtesy. Also, in the garden of the Villa des Dunes itself, there is a charming hot-house, well situated towards the south, with a small lawn in front, and a fountain, while, above, the waving branches of some palm-trees help to maintain an even temperature. Such, in a few words, are the principal features of the Villa des Dunes, where the Empress has, for several months, been suffering from her illness and the exceptional severity of this winter.

A great deal has been said concerning the sanitary conditions of this abode, and the correspondent of the *Morning Post* has dilated at length on a drain coming from the Villa des Dunes, falling into the sea close by, and spreading on all sides obnoxious odours. We consequently made special inquiries as to this drain, and find that the Empress, perhaps inspired by some recent teaching, had a great objection to the presence of a kitchen in the basement of the house. She at once declared that she would have no cooking done on the premises. Hence it was necessary to extemporise a kitchen in the porter's lodge, and this had to be done in eight days. An iron drain had to be laid down in great haste to conduct the kitchen-water from the porter's lodge to the Mediterranean, and it is this iron-pipe which so many persons have discovered and denounced. All that can be said is that the pipe, though a somewhat clumsy contrivance, does not contain any sewage matter; and, secondly, that it does not communicate with the Villa des Dunes, but with the porter's lodge, which is altogether a separate building. The existence of this pipe is not a worse grievance than the general one of being so near to the beach, which, at Cannes, is little better than an elongated dust-heap, where the inhabitants throw their refuse,—where abominable smells are engendered, dust replete with live organisms developed, a general nuisance created, and all this on a shore where there is no tide to wash the impurities away, and where invalids linger in search of fresh air and health!

With regard to the sewage proper, this is collected in a *fosse*, which is emptied in the summer, when the villa is not inhabited. This system is very general at Cannes, and is neither better nor worse than what may be found in many similar villas. But M. Baron, the architect, merits special commendation for the construction of a drain, sufficiently large to admit a man, running entirely round the house. Here the rain-water from the roof, the water from the garden, whatever damp, in fact, may arise, finds its way to this large, carefully-cemented, and covered trench. It does not receive any foul water, but it preserves the foundations of the house from damp. The villa is warmed by means of flues communicating with two large fires. The first and largest fire supplies heat to nearly all the various rooms and passages, while the second is reserved exclusively for the drawing and sitting rooms. These are built by Messrs. Gallibert, of Paris; and though, doubtless, very good in themselves, offer none of the modern advantages which the progress of sanitary science has suggested. Considering that expense was not spared, this would have been a good opportunity of applying a carefully-conceived system of ventilation. As it is, the intake for air is contrived solely for the purpose of keeping the fire burning. If the air is considered pure enough at Cannes not to require filtering, it might have been advantageous, under certain circumstances, to add a little moisture, or to cool as well as to warm the atmosphere. There are no certain means of regulating the intake and the outlet of the air in the apartments occupied by the Empress, and we should be very surprised, indeed, if any one possessed even an approximative idea of the number of cubic feet of outside air provided per hour to maintain the vitality of the imperial invalid. Yet all this and more might have been done, and would not only have contributed to the health of the patient, but, by adding to the experience acquired, would have benefited science and the world at large.

At the Villa Henri IV., where the Grand Dukes reside, we entered one room a moment or two after the Grand Duke Serge had left it, and found the atmosphere very "stuffy." A faint, sickly perfume, which had been lavishly sprinkled about, did not improve the hygienic condition of the apartment. The fireplace contributed but feebly to the ventilation. The windows were hermetically closed, the draughts through the doors were impeded by rich, elegant, and unwholesome draperies. We fear that in the dwelling-places of the Czars, as in hovels of the peasants, some of the elementary laws of sanitation have still to be taught. The Villa Henri IV., we will remark in conclusion, belongs to the Comte de Bardi, son of the dethroned Duke of Parma, and it is not only an elegant structure, but is furnished with the utmost taste and refinement. There are pieces of antique Italian wood-carving that, in themselves, alone merit a visit, and we cannot but publicly express our thanks to M. Baron, the architect, who procured us the privilege of contemplating these works of art. Not only is the furniture in itself interesting, but it is grouped together with the utmost taste, and we understand that the Comte de Bardi was, in several instances, indebted to M. Baron for designing the furnishing of his rooms. Among other curiosities, there is a Japanese room where everything is in keeping with the name given, and the same may be said of the Turkish room. One feature is the abolition of wall-paper and the employment of the same material used for the furniture to cover the sides of the room. Thus, the drawing-room chairs are covered with red damask, and the wall is hung with the same material. The curtains and furniture of the

bed-room are of white and crimson flannel, the walls are draped with the same material, thus ensuring great warmth. On sanitary grounds, however, this system might well be objectionable, for a material such as flannel must of necessity absorb a large amount of the dirt floating in the air, and would nurture and maintain the vitality of a germ of disease for many months. Another peculiar feature was the introduction of an aquarium into the roof of the library, so that rest from study might be obtained by looking up at the ceiling and watching the sports of the fish. We did not, however, notice any books, or any indications of study. The Grand Duke had been reading, apparently, nothing more serious than Madame Henry Greville's new novel "Un Violon Russe," and the general effect of the rooms was considerably marred by the aspect of empty book-shelves.

The Empress of Russia has, we hear, just left Cannes, so that it will be more easy to inspect her winter residence. It is not yet decided whether next winter she will again visit the Riviera; but, in any case, the Villa des Dunes will for long retain the interest which has been centered upon the residence selected in preference by the Empress of all the Russias.

Cannes, January, 1880.

ARCHITECTURAL COMPETITIONS.*

WITH the growth of the architectural competition system, the evils associated with it seem to have increased rather than otherwise, and they were probably never so powerful as at present, and as they are seriously detrimental both to the progress of good and sound building and architecture, they must be most injurious to our clients, and extremely prejudicial to the progress of true art.

I think you will agree with me that the main causes of these evils are the following (I have endeavoured to class them under two heads):—1st. Those for which committees are mainly responsible; and 2nd, those for which architects are themselves principally to blame. Under the first head are,—insufficient instructions; improper regulations and restrictions as to scale, size, number of drawings; the practice of committees assuming to be judges of the various difficult and technical matters involved in considering designs for the erection of large buildings without taking the evidence and advice of some competent independent assessor, who has had the special training requisite to understand architectural drawings and constructive details, and has a sufficiently high reputation to ensure the confidence of the competitors; the mistake of not determining before the competition in what style of art,—whether Gothic or Classic,—the building is to be erected; the attempt sometimes made by members of committees to canvass for particular designs, or even in some cases to settle the award as a foregone conclusion; and lastly, insufficient care in settling the cost in the first instance, or ascertaining whether the selected design can be carried out for about the sum named.

The evils for which architects have mainly themselves to thank are the following:—The abuse of the motto system; touting and canvassing for votes; submitting highly-coloured falsified perspective views from unattainable points of view; submitting drawings in excess of, and not required by, the instructions; false estimates; preparing elevations with features and architectural ornaments never intended to be inserted in any practical contract drawings; and making designs without viewing the site.

It will be at once apparent that, in order to put a stop to these evils, it can only be done by bringing influence to bear on the committees regulating the competitions and judging the designs, and proving to them the necessity of drawing up strict regulations in the first instance, and then rigidly enforcing them.

Every architect who has competed for a number of years must know how frequently and heartily committees are abused, but I desire to give it as my deliberate opinion that, in most cases I have met with, committees, if they are only left alone, and no undue influence be brought to bear upon them, endeavour, as far as their lights go, to act in an honourable and fair manner. The great difficulty commences the moment pressure is put on a committee by any urgent competitor, and when once mottoes are divulged, and canvassing commences, honour and fair play are frequently flung to the winds; the committee and outside public begin to look upon the whole affair as a farce, and practices which any one individual member of the committee in his private business would denounce as unjust and dishonest, are complacently winked at, whilst the competitors never attempt to justify their individual acts, except on the criminal plea that others do the same. The question is, how are these practices to be stopped, and the competitors compelled to keep the law to each other, as well as the committee to show their determination to enforce it? I submit that a few simple rules honestly laid down and adhered to would soon effect this.

Conversing a few days ago with an agricultural client who had carried out considerable buildings, he expressed his astonishment that architects should consent to submit designs to building committees before an umpire's or assessor's name was stated, remarking that at every cattle, horse, agricultural implement, or even dog show, before the entries are made the names of the assessors or judges are at once announced, printed, and published, as a guarantee of good faith between all parties.

Were the name of a well-known assessor in all architectural competitions announced in the first particulars, it would be a guarantee of good faith, and compel all parties to abide by the regulations issued; but, assuming this to be done, architects should bear in mind that they have no right whatever to ask committees to bind themselves to let such assessor determine the competition as judge.

Gentlemen who are elected to administer either the public or charity funds are the trustees of such money, and they, and they only, have the duty as judges to decide how it shall be spent; but the competitors, though bound to loyally leave the decision to the judges, have a right to insist that they as judges shall take the evidence, on all scientific and technical matters, of competent experts to guide their judgment before coming to a conclusion; and I also submit that the reports of such experts ought in all cases to be printed and sent to all the competitors, whether the committee adopt it or not.

Assuming this scheme is carried out so far, I submit that the present plan of sending in coloured perspective views should be sternly put down. Nine out of ten architectural competition perspectives are simply misrepresentations rather than otherwise; they are not of the slightest use in determining the competition to any one who really understands the matter, and they are generally more or less decoys to catch the unwary. As to the number and scale of the drawings, these should be reduced to the smallest possible limit by the assessor, whose word in this respect should be law, and any competitor breaking this rule, or sending more drawings than asked for, should be at once disqualified.

As regards the question of cost, the assessor would, of course, assist the committee; but here I am afraid, gentlemen, that as in our own private practice, we are much in our clients' hands.

I am not prepared to say whether the motto system should be abolished or not; perhaps in some cases it might be abolished, and in others advantageously retained; but all attempts to canvass either the assessor or committee should be firmly punished by disqualification.

I think, if the scheme I suggest could be adopted, there would be no difficulty in getting architectural competitions placed on a sound and satisfactory basis.

The present plan seems to me to be similar to that which existed between ourselves and the builders as regards obtaining competition tenders before the system of quantities came in vogue, when each builder had to incur the heavy expense of taking out his own quantities. We now supply them with all the necessary information, and practically the architect is the assessor between the builder and the client, and the result is, I believe, generally satisfactory to all parties.

Let a plan, such as I suggest, be adopted, and the assessor or assessors be appointed when the instructions are first issued, and the requirements of the proposed buildings, or, in other words, "architectural quantities," so to say, be properly issued to all competitors, the drawings being drawn to such small scale only as to explain the general design, and I venture to assert that at a fair and moderate cost we should be able to adequately set forth our ideas, and the result would be the advancement of our art, as well as an immense saving of time and money to ourselves, and benefit to the public. It is quite time that the present game of architectural perspective competition beggar-my-neighbour was stopped. Of what use, for instance, were all the magnificent perspective sepia drawings submitted in the Law Courts competition? They were so much wasted effort. In no point, perhaps, has architecture been so seriously injured as a fine art as in the matter of competition perspectives. Perspective drawings, for instance, are frequently prepared,—the point of view of the building, in order to make a good picture, being taken where no living being could stand or see it, and in order to complete the picture or help the skyline, some wholly incongruous architectural feature is inserted in the perspective, and when the building comes to be erected the architect is compelled, in order to be consistent and to prevent cavilling on the part of some of the committee, to erect features which in his heart he knows are entirely out of place. In this respect tricky competition drawings have done much to degrade and injure architecture as a fine art.

As regards the question of architectural assessors, two recent cases aptly illustrate the necessity of the rule that the assessor should be appointed when the conditions are issued. I refer to the competitions for the Reading Town-hall and the City of London School. The first was an extremely unsatisfactory competition; the particulars were loose, vague, and insufficient. The building was to cost about 30,000*l*. Some thirty competitors submitted designs, and some very elaborate sets of drawings were sent in. An architect from another distant provincial town was called in as assessor, who reported that none of the designs were suitable for the proposed buildings, or could be erected for the money; and ultimately the same gentleman who had acted as the assessor was entrusted by the committee to carry out the buildings.

Great care was taken to explain that this was the committee's act, and not the assessor's wish; but this case evidently proves the necessity of the assessor's name being announced with the first particulars, and that there should be at least a tacit understanding that an umpire is not, after the premiums are awarded, in future to come in as the successful architect to carry out the works.

The City of London School competition caused a considerable amount of discussion, and as I personally took a leading part in a deputation which waited on the Corporation of London with reference to it, I may perhaps be permitted to state at length a few facts concerning it.

The building was an important one, and to cost nearly 50,000*l*. The instructions were clear and comprehensive, and the premiums liberal. Nothing whatever was said as to an assessor being appointed to guide the committee; but it was known that, in all previous City competitions, the City Architect had acted in that capacity. Before the report of the committee was presented to the Corporation it transpired that they had settled the awards without any practical aid to assist their labours beyond that of an assistant in the City Architect's office, who had already worked on two sets of rejected designs prepared under his eye. The competitors naturally felt disappointed, and ultimately, the majority of them being citizens and liverymen, it was resolved to petition the Court of Common Council to call in a competent assessor of high standing to guide the committee's labours. On the first day, when the petition was presented, the petitioners attended at the bar of the Court, and an attempt having been made to put them down by one of the members, the Court very honourably determined to give them full hearing, and adjourned the discussion to a later day, when the petitioners were fairly heard, and most courteously treated. One member of the Court, Mr. Edmeston, F.R.I.B.A., endeavoured to get the prayer of the petition granted; but it became evident from the first that the petitioners were too late in their efforts, as the Court could not grant the petition without seeming to slight their own committee, and the petition, therefore, fell through. At the same time, there can be little doubt that the effort then made by the competitors was not without its effect both on the Corporation and the public at large.

The committee consisted of about twenty members, and the only practical person on it was a builder, and it was truly said at the time

* From a paper by Mr. Robert Walker, F.R.I.B.A., read before the Architectural Association on the 30th ult., as elsewhere mentioned.

that there were two well-known London solicitors on the committee, though neither of those legal gentlemen would have advised a client to put any of the committee (excepting the builder) into a witness-box to give evidence on the smallest building matter; and yet this committee, with the advice only of the City Architect's assistant, settled a competition for a national building costing 50,000*l.*, there being fifty-three competitors, the majority of them Fellows of the Institute, and men of high standing in their profession.

I think, therefore, I may assert that had it been announced at the commencement of the Reading Town Hall competition that the umpire would himself ultimately carry out the building, few would have competed; and had it been stated at the outset, as regards the City Schools, that no assessor would be called in to guide the committee, except the City Architect's assistant, few of the eminent architects who submitted designs would, I think, have done so.

Having thus given my views as to the proposed reforms which I think might and ought to be carried out, the next question is, how are we to commence them? It is obvious that any reform must be of gradual growth and progress; the evils connected with competition have not grown up in a day or even generation, and they will not be eradicated at once. Our first duty is to commence with ourselves. I see no reason why this Association, for instance, should not appoint a standing committee on the subject of competitions, for the purpose of getting together information, and doing their best to enlighten members of competition committees; in any case, I think we have sufficient confidence in each other to make an effort by a mutual understanding to remedy some of the evils for which the profession are mainly responsible.

Secondly, I think we can bring the moral weight of public opinion to bear on the daily and provincial press, as well as the professional journals, in order to let competition committees know that their acts are carefully watched and scrutinised.

Thirdly, we can come to some general understanding amongst ourselves on the subject of assessors, and I believe that assessors themselves at least can be brought to see that they must look more carefully into the actual practical merits of designs, and less into the mere question of showy drawings.

Is it to be said that bodies of Englishmen can meet together on the subject of agricultural implements, machinery, and even dog and cattle shows, or horticultural and floral exhibitions, and cheerfully submit to the awards of their judges; but that, when it comes to the selection of an architectural design, the settlement must necessarily be a job or a farce? I think not, and I believe that if we only frankly agree in some general rules of procedure amongst ourselves, the outside public will, in the long run at least, support us, and many of the evils connected with the system we complain of will soon be eradicated.

As regards the question of the amount of premiums, this must, of course, depend upon circumstances; they should, however, be adequate in amount, at least, as laid down by the Institute in their suggestions for competitions. In all cases where designs are invited in open competition there should, I think, be public exhibition of the drawings. No motive can possibly exist, except a sinister one, for secrecy, and competitors who have spent a large amount of time and trouble on their designs have at least a right to insist on having the opportunity of examining their fellow-competitors' work; in fact, one of the main advantages of competition to a young architect is that he is thereby enabled to see how older and more experienced men than himself treat a similar problem. In limited competitions the right to see the drawings is frequently denied. This is so obviously unfair that too much stress cannot be laid on both the moral and legal right of every competitor to see exactly what has been done.

A word or two is necessary as regards sham competitions, for such, unfortunately, are not unknown. All of us probably have, in the course of our experience, known instances where competitions have been publicly advertised, and, upon receiving the conditions, we have found them of the vaguest possible character, loosely drawn, and the cost of the buildings might probably be any amount between 10,000*l.* and 20,000*l.* The general inference to be drawn from this is either that the committee have a favourite who, while posting himself well up in the information necessary in the case, has managed to get it withheld from other competitors; or else that the secretary or some one on the committee has been attempting to do the same thing. I ask what should we think of ourselves were we to treat builders who tender for our clients' works in this way? Would not any architect acting thus be blackballed at once by his brethren, and are we not justified in fully exposing such practices? Nay, is it not a duty incumbent on us as honourable men to take steps to do so? My experience is that, though these sham competitions are by no means uncommon, yet that no committee, as a body, is ever answerable for them, the fact being that it is generally one or two members of the committee who manage the rest unknown to them in these matters, and I submit that if we were only to act fairly among ourselves, any committee of Englishmen on which this kind of manipulation is attempted, would, in the event of its being properly exposed, be only too grateful to us for our assistance. In any case, sham competitions, if the system is to be ever purified, must be exposed and rendered impossible.

RECENT ASSYRIAN AND BABYLONIAN RESEARCH.*

IN a former paper, which I read some time ago before the Society of Biblical Archæology, I gave an account of my researches in Assyria, which I had carried on there in 1877, for the trustees of the British Museum; and now, in this paper, which I have the pleasure to read before you, I intend to give a *résumé* of my last explorations in Nineveh and Babylon, with a description of the different ancient sites existing there at present.

The expedition that I undertook to Assyria in 1878 proved so pregnant with good results, that the trustees of the British Museum sent me out again to exhume more of the buried relics of the past, and although I was not so successful in this last expedition as I was on former occasions, by bringing to England large objects for the public gaze, I was, nevertheless, fortunate in bringing to light interesting records of the old kings of Assyria and Babylonia, such as Shalmaneser, Sennacherib, Sardanapalus, Nebuchadnezzar, Cyrus, and others. As a matter of course, whenever I start on such expeditions I always make up my mind to bear disappointments, and to work against oppositions, prejudices, and jealousies; but thanks to the energy and help of Sir Henry Layard, her Majesty's ambassador at Constantinople, who has always been ready to support me, my task has been made easy through his personal influence with the Sultan of Turkey. Most fortunately for me, I undertook the last two expeditions during his tenure of office in representing England at the Ottoman capital, and had he not been there I am certain the greater part of my discoveries would have been now buried underground. His first and greatest difficulty was to induce the Sublime Porte to forego some stringent rules which had been framed a few years back (regarding the research for antiquities) to prevent private adventurers from excavating and helping themselves to valuable antiquities for their own benefit. Indeed, some explorers, I was told at Constantinople, had actually entered into an agreement with the Turkish Government to give them half of what was found, and that they had broken faith and smuggled away all the relics discovered, and sold them either in Europe or America. We must not, therefore, wonder at the jealousy of the Porte and the strict rules which they forced upon the late Mr. George Smith, and which they tried likewise to impose on me.

There has been so much written from time to time about the researches in Assyria, especially by Sir Henry Layard, who in his two works, entitled "Nineveh and its Remains," and "Nineveh and Babylon," has given such an interesting and minute account of his magnificent discoveries, that it would be quite presumption on my part to attempt any addition to his lucid description. I must, therefore, confine myself to describing the nature of my own work, and the topography of the ancient Biblical cities.

There were four sites of the Royal Assyrian residences discovered on the left side of the Tigris, in what was considered Assyria proper, and which were, I believe, in the time of the preaching of the Prophet Jonah, within the metropolis of Nineveh; these are Koyunjik, Nebbi Younis, Nimroud, and Khorsabad. There are other important ruins within what I consider to be the radius of that "great city," such as Yarimja, Balawat, Karamlais, Bahsheecka, and Shareefkhan. Taking the oblong distance of these different ruins, together with Koyunjik and Nebbi Younis on the western limit, Nimroud on its southern border, and Khorsabad on its northern side, makes the size of the old city around about sixty miles, or three days' journey, as mentioned in Holy Writ; because twenty miles are reckoned in that country, according to the travelling of a pedestrian, about a day's journey. In all these mounds there have been discovered Assyrian remains; and at Balawat, especially, I discovered during my expedition to Assyria, in the beginning of the year before last, the famous bronze gates* and temple dedicated to the god of war by Assur-nazir-pal, upon which I shall touch hereafter. There are, besides these mounds, several others scattered all over the above-mentioned space which must have been formerly temples, or watch-towers to guard the several quarters of the great town, with gardens and orchards enclosed.

Nimroud is considered by Assyrian scholars to be the "Calah" of the Bible; but whether this be correct or not, I believe, at the time of the preaching of Jonah, it was comprised within the southern extremity of Nineveh. In this mound there were four different palaces discovered by Sir Henry Layard during his researches, the oldest of which, whose sculptures were found in better preservation than any other Assyrian bas-reliefs yet discovered, belonged to Assurnazir-pal, the father of Shalmaneser, mentioned in 2 Kings, who reigned about 860 B.C. The second, which is called in Layard's "Nineveh and Babylon" the central palace, was very much destroyed, and beyond a few scattered sculptures and some entrances embellished with human-headed bulls, no complete edifice was found. Here was also found the famous black obelisk now in the British Museum, on which is represented that king's conquest of Cappadocia, Armenia, Media, Babylonia, Syria, and Phœnicia. It is related here also that "Jehu, the son of Omri,† gave Shalmaneser a tribute of gold, silver, and articles manufactured from gold"; and one of the figures represented on the obelisk prostrating himself on the ground before the great king was either Jehu himself or his ambassador. The third building at Nimroud, which is called "south-west palace," was found very much destroyed by fire; and from the records found on some of the dilapidated sculptures, it seemed that this palace was built by Esarhaddon, the son of Sennacherib, who, to save himself the expense and trouble of bringing the required material from a distant quarry, contented himself with removing the sculptures from the other palaces at Nimroud, turned the bas-reliefs to the brick wall or support, and had his own designs engraved on the back of them. In the chronicle of this king he says that he had built a magnificent palace at that part of Nineveh called Nebbi Younis, but hitherto nothing has been discovered at that mound deserving the praise that Esarhaddon lavished upon it. As I shall have occasion hereafter to refer to this mound, I must pass to the fourth building discovered at Nimroud, called the south-east palace, which was supposed to have been erected by the grandson of Esarhaddon. The style of architecture of this (scarcely worth the dignified name of palace) was very inferior to any Assyrian building that has been discovered. It was built, as Sir Henry Layard supposes, when the empire was decaying and art declining, because there were no sculptures nor paintings visible, but the whole structure was panelled by rude limestone slabs about 3 ft. 6 in. high. The upper part of the walls, built of sun-dried bricks, was simply plastered over with lime,—a mode of decoration which the Sassanians employed in their buildings after the destruction of the Babylonian monarchy. Below this I discovered the remains of a more ancient edifice, containing a few sculptures which had been brought from the centre palace, belonging to the time of

* From a paper read by Mr. Hormuzd Rassam, before the Victoria Institute, on Monday evening last.

* Described in the *Builder*, vol. xxxvii., pp. 531, 673.

† Assyrian scholars identify this king of Israel with Jehu, the son of Jehoshaphat and grandson of Nimshi, mentioned in 2 Kings ix. 2; and they consider the parental name of "Omri" to have been given to him by the Assyrians from their association with a former king of the same name.

Tiglath-pileser, or Shalmaneser, with a stone tablet or stele representing thereon the king of the time, supposed to be the grandson of Esarhaddon; and also two detached statues dedicated to the god Nebo, all of which are now in the British Museum.

Last year I discovered, not far from the north-west palace at Nimroud, a temple built by the same founder; but the destroying enemy had so managed to make a thorough wreck of the whole structure that there was no trace left of the actual walls; and even the beautiful enamelled tiles which must have adorned the ceiling were so broken and scattered about in different directions that, though more than a dozen large baskets were filled with the pieces found, I was not able to complete even a single one for the British Museum. The only objects that I found whole and standing in their original position were a marble altar and what seemed to me a vessel let into the floor of the room to receive the blood of the sacrifice. I also found marble seats for the ministering priests to sit on, or for some other purpose. Besides these there were pieces of a very handsome tripod, round and square pillars of marble and stone, with hundreds of inscribed bricks scattered all over the place, with about twelve marble platforms; some of them contain inscriptions which were so much damaged that no one has as yet been able to read them. These platforms I believe to have been dedicated to different gods for sacrificial purposes; and I trust when the Assyrian scholars manage to decipher the inscriptions some valuable acquisition may be added to history.

At the mound of Khorsabad, where excavations were carried on for the Louvre by the French Government, under the superintendence of MM. Botta and Place, the late French consuls at Mossul, a fine but a ruined palace was discovered, which is said to have been erected by Sargon, the father of Sennacherib.

At Koyunjik, which I consider to be the city of Nineveh, Sir Henry Layard discovered the grand palace of the last-named monarch, where it is supposed he was slain by his sons, Adrammelech and Sharezer. At the northern corner of the same mound I discovered, in 1854, another palace built by the grandson of Esarhaddon, whose name has been read by different Assyriologists as Assur-bani-pal.* This palace was also very much damaged, but from the nature of the bas-reliefs which were found in good preservation, especially those comprising the lion-hunt room, Assyrian art seems very much improved in that period, for no one who takes the trouble to visit the basement Assyrian room in the British Museum can help admiring the spirit in which the different animals used for the chase are delineated; and whether one looks at the lions charging, or suffering from the wounds inflicted, or lying dead, hounds chasing the wild ass and deer, and others being held by a leash, he sees the true spirit of art therein depicted.† In this very palace were discovered the Creation and Deluge records, with thousands of other inscribed terra-cottas, which have thrown lustre on the obscure ancient history, and brought to light a number of Assyrian and Hebrew kings whose names had been missing. Amongst the latter I discovered a perfect decagon terra-cotta cylinder covered with nearly 1,300 lines of fine inscription, recording a history of about twenty years of the reign of Assur-bani-pal, or Sardanapalus, about 640 years before the Christian era, including an account of the utter subjection of Egypt and his supremacy over Western Asia. On a former expedition I had discovered a duplicate copy of this cylinder, which was in a dilapidated state, and a good deal of it was missing; but this new find has enabled Mr. Pinches, of the British Museum, to refill the broken parts.

Formerly Assyrian researchers did not consider it worth the expense to clear out all the *débris* from the buried chamber, seeing that in those days the reading of the cuneiform characters had not attained to the existing knowledge, and so Sir Henry Layard and I tried, with the little money we had at our disposal, to procure for the British Museum as many records of the past as possible engraved on marble and stone. I do not mean to say that we threw away any inscription found, and that we had only valued sculptured antiquities; but as we had only a certain amount to spend, and so many months in which to accomplish our missions, we could spare neither money nor time in clearing out all the rubbish from the different chambers which we discovered, and so we could only dig about 5 ft. or 6 ft. in front of the walls, whether sculptured or otherwise, so as to allow space for the workmen to pass each other unhindered. Since then there has been so much interest evinced in this branch of archæological research, especially since the Creation and the Deluge tablets were deciphered, that the trustees of the British Museum have been anxious to obtain an additional supply to the already existing collection, particularly in completing the tablets which are considered most interesting to Biblical students. On this account I was sent to Mesopotamia again by the British Museum authorities in 1877; and though my first attention was directed towards the above object, nevertheless I could not content myself with that stale occupation of merely examining the already-discovered palaces, but I endeavoured to try other new localities, where my efforts proved successful. Now we do not only clear out all the chambers of the *débris*, but actually break down every wall, in search for records, because it happened that both in the palace of Sennacherib and that of Assur-bani-pal we found cylinders buried in the solid brick walls, which were placed there evidently by the king's command, to preserve them from destruction in case of fire.

The first time I began to consider it necessary to examine all the walls of the Assyrian chambers was when I discovered, by mere accident, one of the afore-mentioned cylinders recording the annals of Sardanapalus buried in a solid wall, about 10 ft. from the lion-hunt room of the same king, which I discovered no less than twenty-five years before. I was that day going to Nimroud, to look after my other excavations there; but before I proceeded thither I went to see how the work was proceeding at Koyunjik, and also to give directions for future proceedings. When I was leaving, the overseer superintending the work at that mound asked me whether he was to cover a remnant of a broken wall with the *débris* they were clearing out, or have it removed first. I told him, most fortunately, that as we were clearing every part of the palace, he might just as well pull down that remnant of a wall too, and it appeared that I had not gone away two hours before we were rewarded by the discovery of this valuable relic.

The kings of Assyria, it seems, had a wise plan of building within the bottom part of the solid walls of a palace the official record of their reign; and, generally speaking, they had a number of copies made of the same history, and buried the objects on which they were written in different parts of the building, in order that if the palace were burnt down the royal records would be preserved. Had this cylinder and many others not been thus secured, they would doubtless have met with the same fate as others whose pieces are found scattered all over the different palaces, and also in the fields. These historical cylinders are of different sizes and shapes; some are divided into six, eight, or ten sides or panels, and some are oblong, but the one I found in the palace of Sardanapalus was the largest that has yet been discovered. Other records, such as astronomical observations, invocations or hymns, legends, contracts, and official deeds, were impressed on different sized terra-cotta tablets the same as the Creation and Deluge ones. The arrowheads, or characters, must have been impressed by a small wedge tool before the terra-cotta objects were baked, and the characters are so beautifully and exactly formed, that one would think that the whole was done by one stroke of a stamp.

I had great difficulty in digging out these historical relics, because, before I could penetrate to the bottom of the chambers where these objects were found, I had sometimes to dig 30 ft. or 40 ft. of *débris* which had been accumulated since the destruction of the buildings by modern occupiers of the mound and different explorers. Since I undertook the last two expeditions, I worked on systematically, by either throwing away the rubbish far away from the site I intended to excavate, or having a few chambers cleared out altogether without even leaving a wall, and then worked round the heap in the centre. By this method there is no fear now of wasting our time or money, or losing any relic which might have been missed in the removal of the rubbish from place to place, as was done formerly.

The excavations at Nimroud, generally speaking, are not very deep, as they are at Koyunjik; because in some places at the former mound we had only to dig 1 ft. or 2 ft. and come upon the top of the buildings, while at the latter place we were obliged sometimes to excavate down 20 ft. ere we could come upon any signs of ancient remains. In one case, where I discovered Assur-nazir-pal's obelisk, which is now in the British Museum, I had to penetrate into the ground 35 ft. before I came upon Assyrian remains. The discovery of this obelisk and the large Sardanapalus cylinder makes me very often feel how an explorer might miss a most valuable record of the past by merely digging a foot or even a few inches from either side of it; and this fact leads me to hope that before England abandons the researches in Assyria and Babylonia altogether, where she has been so marvellously successful in her explorations, she will have the mounds of Koyunjik and Nimroud laid bare; that is to say, have them thoroughly examined, by beginning at one end and finishing at the other. I feel confident that if the work were continued for the next hundred years, in the same style in which we have been carrying it on for the last thirty-five years, still, at the end, we might, perhaps, miss a relic which would be most invaluable to both religious and scientific research.

The bronze plates found at Balawat appear to have covered a two-leaf cedar gate about 20 feet square by 4 in. thick; and as the wood has quite rotted away, we could only find out its thickness from the bend of the nails that were found fixed to it. The scrolls or sheets of bronzes I found did not cover the whole wooden frame, but between each of the scrolls there must have been some ornamental woodwork or some precious metal of which the monument was stripped when the Assyrian monarchy began to decay. The illustrations on this monument, which are of bas-reliefs in *repoussé* work, are minute in detail and elegant in style, and represent the battle-scenes, marching order, and religious ceremonies of the Assyrians. Each plate is divided into two tiers, and surrounded by a large number of rosettes, which encircled the tops of the nails that fastened the metal to the wood. This trophy is so much corroded and broken that a good deal of labour has been spent on it to have it renovated and put together; but it is hoped that under the good management of Mr. Ready, of the British Museum, the most accomplished restorer of such damaged monuments, the public will ere long be able to see it and examine the variety of subjects depicted thereon. It affords many representations which had not appeared before in Assyrian bas-reliefs, and the most curious are the pontoons thrown across a river, the mode of the Assyrian worship, and the way they performed their sacrifices.

Within 15 ft. of this gate I found another one, about half the size of the above; but this has been greatly damaged from corrosion, and I fear that with all the care Mr. Ready will, I am sure, lavish upon it, he will scarcely be able to restore half of it. From all that can be seen of the illustrations upon it, it seems that all the subjects represent hunting scenes and domestic amusements; and instead of the plates being divided into two rows of figures, as they are on the large gate, they only consist of one; but the designs are larger.

At Balawat I also found a temple dedicated by Assur-nazir-pal, the builder of the north-west palace of Nimroud, to the goddess of war, wherein I discovered a marble coffer, with two tablets of the same material therein enclosed, covered with inscriptions. They begin with the pedigree of that king, and relate his conquests. Then they give an account of the erection of gates of cedar-wood overlaid with copper to adorn the temple. At the end of these tablets there is a curious invocation made to Estar, the goddess of war and battle, against those who would see them and desecrate them by removing them from their place; and as I was the guilty party, I fear that I have fallen under their condemnation!

I must now say a few words about the structure of the Assyrian buildings, and how I

* Assur-iddenna-pal and Assur-iddenna-palla, supposed to be Sardanapalus of the Greek and Roman legends. Hunting, it seems, was a great recreation of the Assyrian kings, because we find that at the north-west palace at Nimroud, Assur-nazir-pal, the father of Shalmaneser, is represented on the sculptures engaged in the lion and bull hunt.

† On viewing the sculptures of the lion-hunt in this chamber it reminds one of the inspired words of Nahum in the 11th verse of the second chapter, where it is said, "Where is the dwelling of the lions and the feeding-place of the young lions, where the lion, even the old lion walked, and the lion's whelp, and none made them afraid?"

believe the *débris* accumulated over them. I have often been asked by different people about this, and even after I tried to explain to them my theory, I did not feel quite satisfied at the end with the opinion I had formed on the subject. The general idea is that the Assyrian palaces were one story high, without any basement; but, from my personal observations of the different erections, I believe that most of the Royal edifices consisted of at least two stories. Even if we allowed the brick walls above the sculptures to have been 10 ft. or 15 ft. high, and 5 ft. or 6 ft. thick, there would not be material enough to fill in the space between the walls of the large saloons and halls, especially the open courtyards, which are sometimes from 100 ft. to 150 ft. square, and when we consider that in some instances we found the earth that covered the ruins was about 10 ft. above them, it is more than probable that there were other buildings on the top of the one which was found buried below them.* The late M. Place, who excavated at Khorsabad for the French Museum, was of the same opinion, and in the interesting work he published he explains his theory by elegant plans and drawings.

It is believed on the authority of Greek and other historians that when the last Assyrian king, supposed to be Saracus, was besieged at Nineveh by Nabopolassar, the father of Nebuchadnezzar, he shut himself in one of his palaces, which he set on fire and perished therein with all his family about 625 B.C.,† so when the lower or ground story was burnt down the upper one fell into it, and since then rain and sand-storms and future occupiers of the place made the mound look as if it had been a natural hill. The nature of the rubbish and walls led me to this conjecture, and thus I believe that most of the Assyrian palaces were two stories high. The first story or ground floor was panelled with plain or sculptured slabs, engraved after they were built in, with walls to support them of sun-dried bricks varying from 4 ft. to 5 ft. in thickness. The second story must have been built entirely of sun-dried bricks, plastered or painted over with hunting scenes or martial representations. It may be asked how the lower story could have been supplied with daylight, when there was another story above it; my answer to this objection is that the outer rooms or halls might have been lighted through apertures or windows in the outer walls, and that the inner rooms, like those in which Sennacherib deposited his library, had no separate light, but were merely supplied by the reflection from the outer rooms, or it might have been that those rooms had no other building above them, and they were lighted by means of skylights. However, be it as it may, I feel confident that it was quite impossible that the whole of the Assyrian palaces could have been filled up to such an extent from the mere falling in of the upper part of the walls and the roofing.‡

It may be that after the destruction of the Nineveh palaces, other occupiers of less refined tastes levelled the hateful sites, and erected their dwellings on them, and thus the brick buildings accumulated from time to time on the top, and made the royal residences look like a mass of rubbish. This is shown by the Sassanian and Arab ruins which were found in the palace of Assur-bani-pal and Kala-Shergat. Indeed, at the former place, it is shown that other people who occupied that site made some show of modern architecture by using stone and plaster with pillars to adorn the exterior part of the building. Unfortunately, these superstructures have also been so much destroyed that I could not trace the general plan of the building because undoubtedly both the people of Nebbi Younis and Mossul had been digging for stone and marble from time immemorial for their own purposes, and nothing but the depth of the Assyrian structures saved them from utter demolition. I believe that more than one-half of Assur-bani-pal's palace was destroyed by the Sassanians in digging for stone, as they were too indolent to obtain it from the stone and marble quarries which are abundant around Koyunjik and Mossul.

The site of the city of Nineveh has never been forgotten in the country, because both tradition and historical records point out Koyunjik and Nebbi Younis as the spot where the capital of the old world stood. Nebbi Younis (which means in Arabic "Prophet Jonah"), the mound within half a mile of Koyunjik, contains a mosque dedicated to that prophet, in which is shown the shrine of Jonah. It was formerly a Chaldean church, but like many other old churches in Asiatic Turkey, they were preferred by the indolent Mohammedan conquerors to convert into mosques rather than to go to the expense of building new ones. Though this mound is generally called Nebbi Younis, after the prophet Jonah, officially it is still called "Nineveh" and this I learnt when I wanted to make some excavations there, and had to enter into an agreement with the guardian of the mosque to allow me to do so, as all the land belongs to it. They merely mentioned the word "Nineveh" in the document, and when I asked them for the reason of omitting the common name of "Nebbi Younis," they said that that was the only legal name they could use.

The mound of Nebbi Younis is supposed to have been inhabited by three kings, namely, Pul, Sennacherib, and Esarhaddon; but from the annals of the latter king we learn he had built a palace "such as the kings, his fathers who went before him, had never made," and which he called "the palace of the pleasures of all the year." According to this statement, the climate of that country must have been quite different from what it is now, because the heat of summer at the present day is so intense that no one in his senses can spend at that spot the summer months with any feeling of pleasure, especially as there are very pleasant and delightful nooks within thirty or forty miles of Nineveh, where the kings of Assyria might have had an enjoyable retreat in the verdant valleys of the Assyrian mountains.*

* To be continued.

* It is impossible to look at the rubbish heaped over the palaces of Assyria without calling to mind the words of the prophet Nahum, "And I will cast the abominable filth upon thee, and make thee vile, and will set thee as a gazing-stock."

† It is also related that the conqueror completed the utter destruction of that magnificent Assyrian capital by levelling the great walls and delivering the whole city to the flames. This destruction by fire has also been prophesied by Nahum and wonderfully fulfilled. He says in ch. iii. 15, "there shall the fire devour thee." In which of the palaces Saracus destroyed himself it is impossible to tell, but most probably he took refuge in Sennacherib's palace at Koyunjik, as it must have been the most impregnable of all.

‡ Herodotus, in his account of Babylon, mentions that the houses in that city were built three or four stories high.

THE PARKES MUSEUM OF HYGIENE.

ON Saturday afternoon last, Dr. G. V. Poore, one of the hon. secretaries, gave a lecture, to members of metropolitan working men's clubs, on "Food." He began by comparing the human body to a machine, and showed that as by a proper consumption of fuel an engine could be made to give off heat and do work, so the animal body, by a proper consumption of combustible food, was enabled to maintain its proper temperature in all climates, to perform its internal and external work, and likewise (and in this it showed its superiority to the machine with which it had been compared) to maintain its tissues in a state of health and due development. The composition of the body was next alluded to, and it was claimed for a food (1) that it must be combustible, and (2) that it must contain materials which are capable of building-up the body. The classification of food elements into water, nitrogenous elements, fats, starches and sugars, and salts, was then reviewed, and the necessity for the presence of each element was insisted upon. Milk, the only single article of diet upon which the human body can be properly nourished, was then shown to contain a due admixture of food elements. The predominating features of various articles of diet were then touched upon, and the mode of devising and calculating dietaries was shortly explained. In a natural state it had been shown that man might be left to his natural appetite in the selection of his diet, and many popular foods, such, for example, as bread and cheese, bacon and beans, and pork and pease-pudding, were thoroughly in accordance with scientific teaching. Some persons were so situated that an obedience to the appetite was impossible, as, for example, soldiers, prisoners, and helpless children. Scientific dietaries had improved the health of our soldiers, and had converted our prisons from pest-houses into veritable abodes of health. There was still too little science in the feeding of young children, and the ignorance of parents in this respect was truly lamentable. His experience as a physician had taught him that the great majority of children's ailments was traceable to the inability of the mother to make a proper selection of food for her offspring.

Lectures have been arranged for,—by Dr. Steele, on "The Hospital and Sick-room"; by Professor Corfield, on "Ventilation"; and by Mr. Rogers Field on "House Drainage";—the last two lectures being specially intended for members of the Association of Builders' Foremen and Clerks of Works.

REREDOS: NEW CHURCH COLLEGE, DEVONSHIRE-STREET, ISLINGTON.

A NEW reredos has just been erected at the chapel of the New Church (Swedenborgian) College, Devonshire-street, Islington, of which we give an illustration this week.

The eastern wall of the chapel is lofty and narrow, and presented a bare surface nearly 50 ft. in height, so that the reredos had necessarily to be lofty in proportion to its width. It was desired that it should be symbolical in character, and suited to the creed of the congregation; so that in some respects a departure from ordinary forms was required. It is divided into three compartments, both horizontally and vertically. The lowest consists of a base of plain stone behind the altar, supporting the upper parts. The next and principal stage contains in the centre a bas-relief representing the principal objects in the Jewish Tabernacle, and may be taken as the symbol of the Old Testament and Jewish dispensation. It is seen through a curtain, looped back on either side, to indicate the exposition of this dispensation in the writings of Swedenborg. The curtains, which are decorated with a tapestry border of pomegranates, hang behind an ogee arch, and in the spandrels above are two angels with extended wings, and this compartment is crowned with a cornice representing vine-leaves and grapes. The niches on either side of the central one contain the Ten Commandments. In the centre of the upper part of the reredos is a statuette of the Saviour, after Thorwaldsen. On the spire of the canopy to the niche containing it are three crowns, and on the buttresses is written, "King of Kings and Lord of Lords." There are two herald angels on the pinnacles at each side. The reredos is of Caen stone, about 10 ft. 3 in. wide and 22 ft. high. It was designed by Mr. Alexander Payne, architect, of Storey's-gate, St. James's Park, and has been carried out by Messrs Martyn & Emms, sculptors, of Hales-road, Cheltenham.

THE TOMB OF DEAN HOOK, CHICHESTER CATHEDRAL.

A MEMORIAL tomb has just been erected in Chichester Cathedral to Dean Hook, from a design by the late Sir Gilbert Scott.

The slab, of a very pale Emperor's red marble, is incised with a figure of the late Dean from a cartoon supplied by Mr. Clayton, of the firm of Clayton & Bell, of Regent-street. The frame enclosing this is of Rosso Antico marble, richly carved, beneath which is a cornice of Greek green marble, with incised and gilt inscription. The die, of Purbeck, has upon it five panels, with the following incised subjects in pale Emperor's red:—St. Augustine, Lanfranc, Anselm, Cranmer, and Laud.

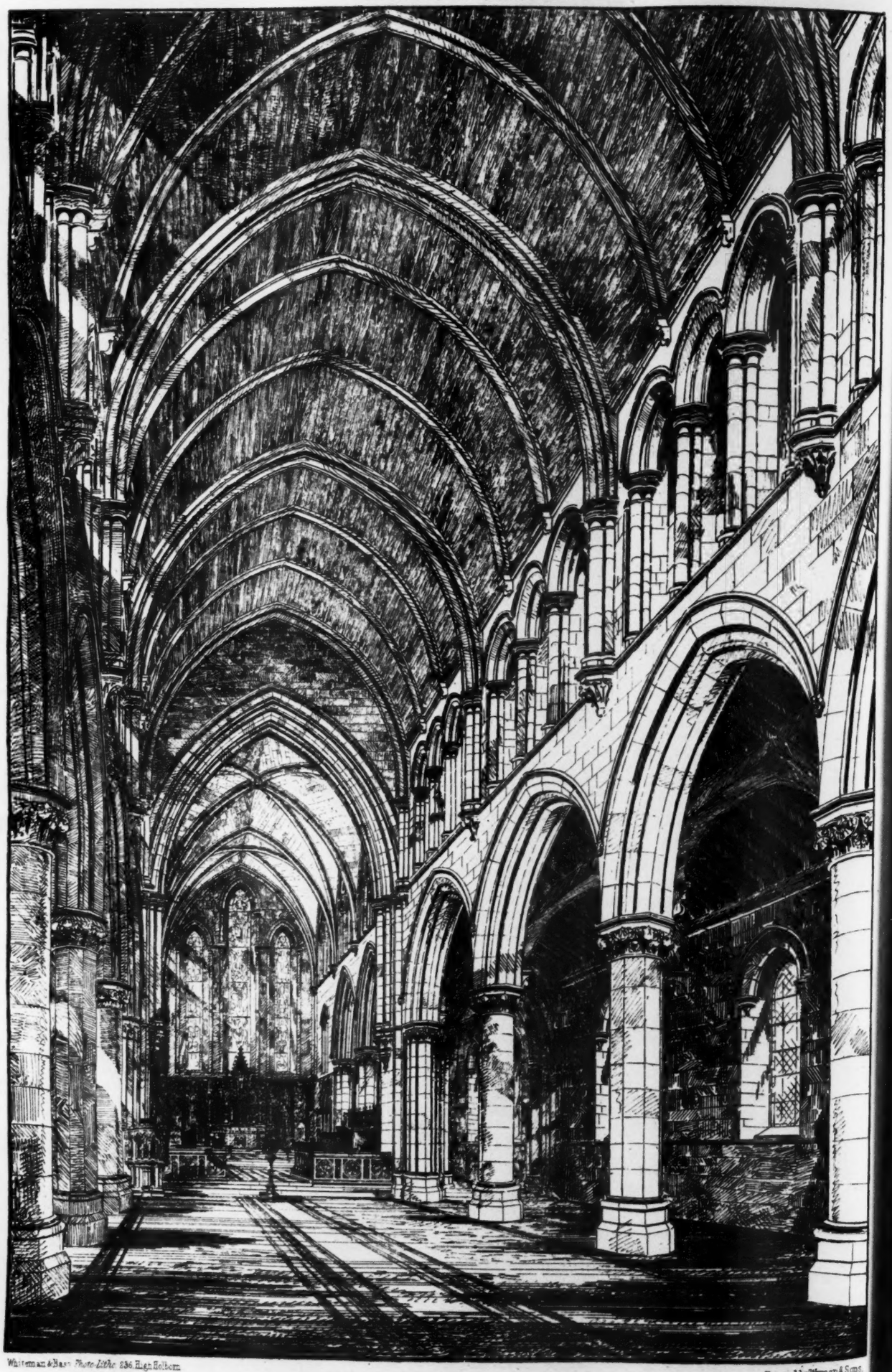
The base is of Cork red, and the sub-base of Belgian black marble.

The words of inscription are as follow:—

IN - PIAM - MEMORIAM
GUALTERI - FARQUHAR - HOOK,
PASTORIS - PRÆDICATORIS - THEOLOGI - HISTORICI
ISTIUS - ECCLESIÆ - CATHEDRALIS
DECANI - P.C. - AMICI.

The whole has been executed in the most admirable manner by Mr. Hill, of 280A, King's-road, Chelsea.

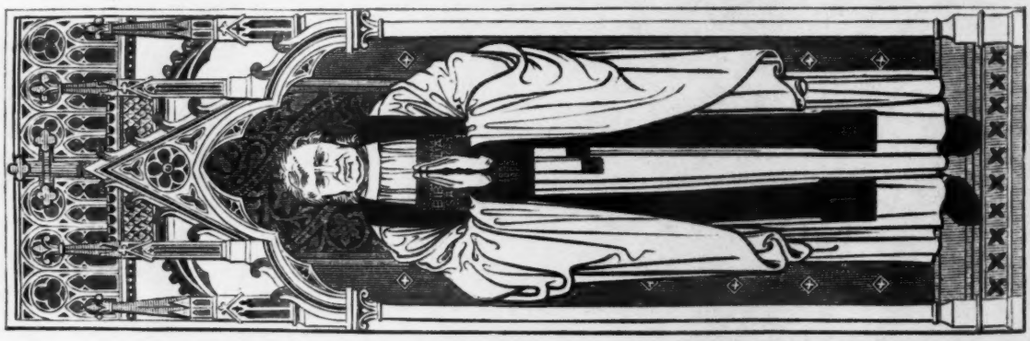
Mr. G. W. Mayhew, whose lamented death was mentioned in our last, was articled to the late Mr. Thomas Finden, architect, and succeeded (with Mr. C. J. Knight, F.S.A., as partner) to the practice of his brother, the late Mr. C. Mayhew, in 1858. He continued in the partnership till 1876, and the firm designed and executed a large number of residences and places of business in and around London. His death occurred quite unexpectedly. In all business transactions Mr. Mayhew was most upright and just.



Whiteman & Hasler Photo-Litho 236 High Holborn

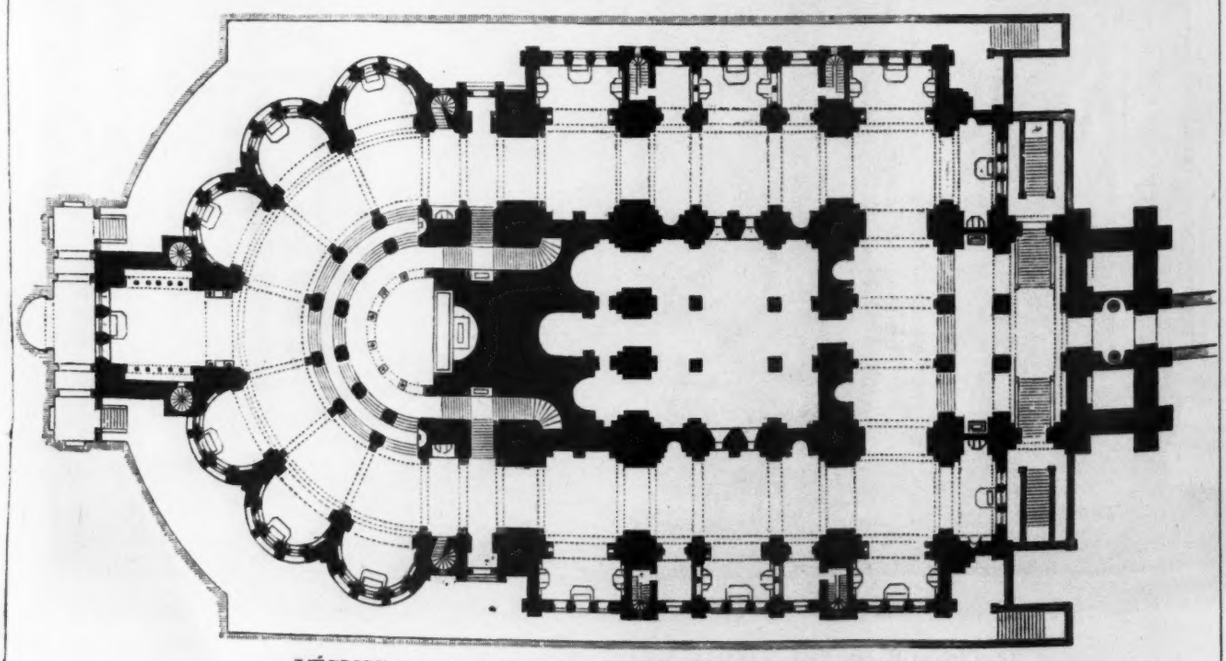
Printed by Wyman & Sons.

THE HOOK MEMORIAL CHURCH, LEEDS.—ERECTED FROM THE DESIGNS OF THE LATE SIR G. G. SCOTT, R.A.



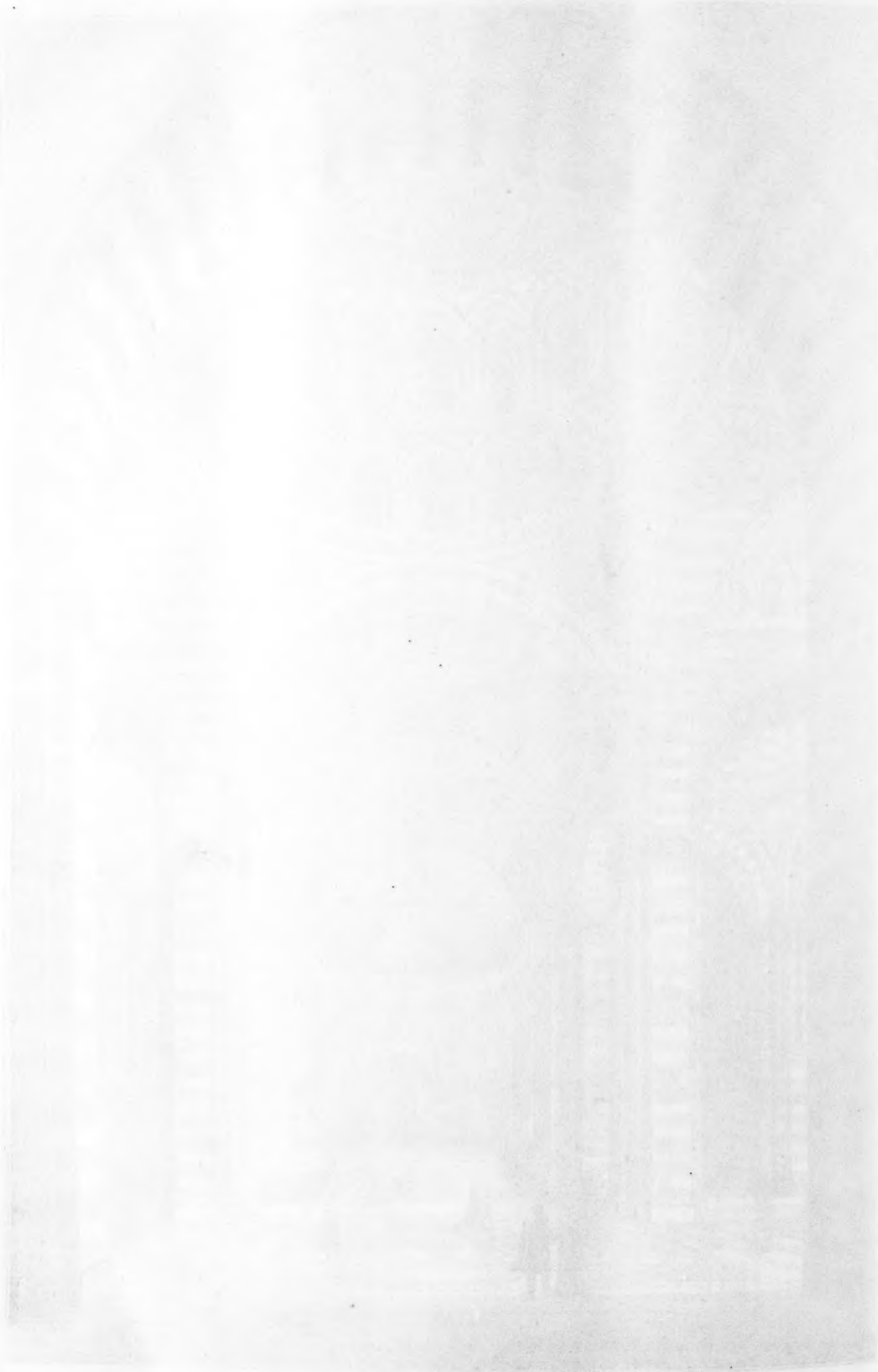
MEMORIAL TOMB OF DEAN HOOK: CHICHESTER CATHEDRAL.

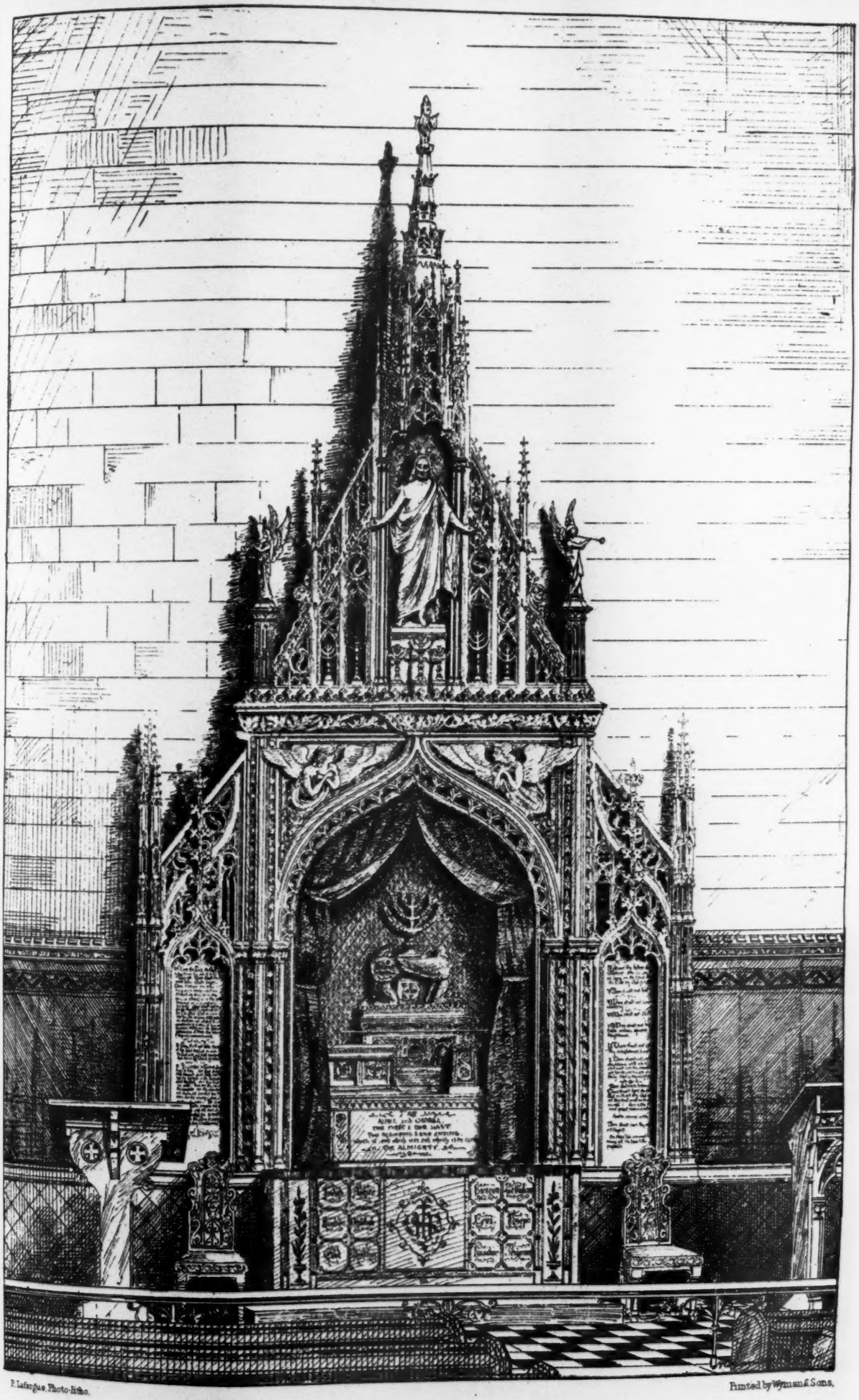
Designed by the late Sir G G. Scott, R.A. Executed by Mr. Hill.



L'ÉGLISE DU SACRÉ CŒUR.—Plan of the Lower Church.

THE CHURCH OF THE SACRED HEART, PARIS.—M. Abadie, Architect.





P. Lafarque, Photo-litho. Printed by Wyman & Sons.

REREDOS, NEW CHURCH COLLEGE, DEVONSHIRE STREET, ISLINGTON.—MR. ALEXANDER PAYNE, ARCHITECT.

THE CHURCH OF THE "SACRÉ CŒUR," PARIS.

It cannot be denied that the idea of crowning the classic hill of Montmartre with a monument which will overtower the whole of Paris is an artistic conception. Tradition tells us how, in the early years of the Christian era, the patron saint of France, St. Denis, and his two faithful companions, suffered martyrdom on the hill of Montmartre,—*mons martyrum*,—and in later times it was to this same spot, overlooking the bewildering roofs of the great city stretched far below, and from which rise markedly the spires and towers of Notre Dame and the Sainte Chapelle, and far away to the north the low, flat plain, alone broken by the line of the abbey church of St. Denis, that came the youthful and ardent Ignatius Loyola, to dream over the foundation of the order of the Jesuits.

The exceptional site chosen for the church of the Sacré Cœur, the erection of which is to be aided by the subscriptions of devotees of every diocese, required a design of peculiar power. Opinions at the time were divided into two parties: in that which advocated "horizontality" the hill would have been covered by a mass of buildings, none of great height, the outline of which, relieving on the sky, would have possessed the harmonious effect produced by the antique acropolis; while, in the other, that approving "verticality," it was desired that the effect should be concentrated in the monument itself, which would then have taken a scale proportionate to this idea, with the hill as a base, itself becoming, as it were, the restoration of the summit. It was to a mixed jury that the competition, in which seventy-five candidates took part, was referred.

It may be stated that the erection on Montmartre of a religious monument was voted by the National Assembly on the 24th of July, 1873. The competition was held in the following year, and the project of M. Abadie was accepted; M. Abadie is therefore the architect, seconded by M. de la Rocque as director of the works, M. Rauline and M. Fauconnier as sub-inspectors, and M. Deglane as draughtsman. The first stone was laid with great pomp on June 16th, 1875, by Monsignor Guibert, archbishop of Paris, in presence of a numerous deputation from all the nations of Christendom, and hence the month of June is chosen as that of the traditional pilgrimage to the Sacré Cœur; for shrine for pilgrims it already is, up the steep slope of the hill to the old-fashioned little town at the summit, with its quaint remains of the picturesque past.

The first stone, laid on the 16th of June, was removed on the 11th of January following, as it was situated exactly on the spot where the foundations had to be commenced. The church being raised by popular subscription, a temporary sanctuary was prepared, and here, in the little chapel, the faithful make their offerings and their petitions. This chapel was inaugurated March 3rd, 1876.

The proposed monument, as designed by M. Abadie, is not wanting in grandeur, even if somewhat a want of artistic refinement may be found in the heaviness of the outline. The church is composed of a large dome, supported on four isolated pillars, and flanked diagonally by four smaller domes.* The belfry is thrown back, above the apse. At the opposite end there is a projecting porch, which communicates with the nave by three doors, from which descends to the square a monumental flight of steps. The architectural style may be called Byzantine. The whole edifice, which measures more than 300 ft. in length, is composed of two distinct portions, the lower and the upper church. In the lower church, and in the centre of the monument, is a "confession," an isolated and unlighted chapel. Round this chapel,—a veritable "crypt,"—are ranged fourteen other chapels, in addition to that of the Virgin.

Four large staircases, two of which are external and two internal, allow of communication between the crypt and the upper church. In this latter the choir is surrounded as in the lower church with a *déambulataire*. Twelve chapels will also surround the church.

It is not difficult to trace to its origin the source of M. Abadie's inspirations. M. Abadie is inspector-general of the Historic Monuments. To him we owe, among other works, the church of Bergerac and the Hôtel de Ville of Angoulême, but, above all, the restoration of the interesting Romanesque church, which received not a little notice in the recent discussion regarding the restoration of St. Mark's, St. Front at Perigueux, which bears to its Venetian counterpart so striking a resemblance.

Difficulties of a more than ordinary nature have presented themselves in the erection of the church, and the immense mass of the monument has naturally required foundations of more than usual strength, and the soil of Montmartre was proved on examination to offer no guarantees of stability. The "buttes Montmartre" are, in fact, composed, in great part, of alluvial deposit, and of clayey marl of considerable depth. For generations there have been worked here important plaster quarries. To come to an understanding of the exact nature of the soil, the architect sank a trial well to a depth of more than 100 ft. below the 30 ft. necessitated for the crypt. The strata met with in the boring being found to be composed of green marl mingled with clay, and presenting no resisting power, the well had to be bored down to the gypsum.

The crypt is founded, as we hear, from M. de la Rocque, upon eighty-five wells 33 mètres in depth; twenty-four of them being each a square, 5 mètres by 5 mètres; ten of them, 3 mètres by 3 mètres, and the remainder being circular, and 3 mètres in diameter. In sinking these wells, 35,000 cubic mètres of earth were removed, and replaced with 28,000 cubic mètres of rubble masonry forming pillars corresponding to the principal points of supports of the church; the pillars being connected by a series of arches in masonry in such a manner as to form an immense gridiron, so to speak, on which have been placed the foundations of the crypt. This immense work was only completed in the spring of 1878, and has cost, we believe, about 150,000*l*.

Of the crypt or lower church nine courses are already placed, bringing up the work to the spring of the vaultings. The work here is composed of stone from Château-Landon, all dressed in the quarries. These stones are, therefore, brought ready for use to the foot of the hill, to the Place St. Pierre, where, when a load has been discharged, there is always a crowd to watch the interesting operation of raising the stones to their position. A crane takes them from the cart, and they are then immediately replaced on a truck, which is made to ascend the inclined plane by a cable moved by a special machine at the summit; while one truck ascends loaded another descends empty. Another crane on rails then places the stone in the position it is to occupy.

The lower church will cost some 4,500,000 fr., 180,000*l*., and the whole edifice more than a million sterling. At the same time as the crypt is being built the construction of the masonry and earthworks to keep up the hill round the building is being pressed forward, as also are the arrangements to carry off the rain-water. The progress of the works, at present stopped by the badness of the weather, is dependent on the subscriptions. Up to the present time they have been conducted on an average expenditure of about 4,000*l*. a month, amounting in the whole to nearly a quarter of a million sterling.

The Church of the Sacré Cœur is, it will be seen, one of no small importance, and to the professional world of no small interest. Whether it will ever be completed it is not for us to say; we may add, however, that something more than the mere technical and pecuniary difficulties seems to lie in the way of such a consummation.

* A double-page external view was given in our volume for 1878, pp. 406-7.

THE HOOK MEMORIAL CHURCH, LEEDS.

On Thursday, the 29th ult., the church of All Souls, Leeds, erected as a memorial of the late Dean Hook, from the designs of the late Sir G. G. Scott, R.A., was consecrated by the Bishop of Ripon. The foundation-stone was laid on the 2nd September, 1876, by Lord Hatherley. The church is still wanting in what its architect, the late Sir Gilbert Scott, called its chief element of dignity, the tower, but this will be built whenever the funds subscribed will warrant it. The building has already cost 18,500*l*., and it is calculated that the tower will cost an additional 5,000*l*. The bishops and clergy taking part in the service assembled in the temporary church, whence a procession was formed to the new building. The procession included Lord Hatherley, Sir Andrew Fairbairn, the Bishop of Ripon, the Archbishop of Canterbury, the Bishop of Brechin, the Bishop of Chichester, and an exceedingly large gathering of the clergy. We give an interior view of the church. In plan it consists of nave and chancel, with their side aisles, a south porch, and eventually a tower to the north-west forming a baptistery. The style is the Transition preceding the Early English, and the treatment is very bold and massive. The whole is of stone, varied slightly in colour. The church has a clearstory of lancet windows throughout, and its external effect is a good deal enhanced by the fall of the ground towards the east, which gives much additional dignity to the east end, while it has the great practical advantage of affording space for large vestries, parish room, &c., under the chancel and its aisles. These are entered from the south, and are connected with the church by a stone staircase rising into the chancel aisle. Internally the effect is particularly good, and has much of that monumental character which the circumstances of its foundation make necessary. The chancel is groined in stone, the other roofs being of pitch-pine. The three large lancets which form the east window are filled with stained glass, executed by Messrs. Clayton & Bell. The reredos, the gift of the late Dr. Hook's family, is at present incomplete, only the central portion about the altar having been erected; it is to occupy the whole breadth of the chancel. The pavements all through the church are of Rust's mosaic, the arrangements becoming richer towards the east. The lighting is effected by groups of jets at the level of the clearstory windows, and by a number of pendants in the chancel.

Sir Gilbert Scott's death occurring very soon after the church was begun, it has been carried on by his son, Mr. J. Oldrid Scott. The builder has been Mr. Whiteley, of Leeds, who, unhappily, has not lived to see the completion of his work. Special gifts in the church are a carved oak faldstool, an eagle lectern, chalice studded with jewels, flagon and paten, magnificent altar frontals of various colours, altar furniture, consisting of cross candlesticks and vases, offertory bags, stoles, and so on.

ARCHITECTURAL ASSOCIATION.

At the ordinary fortnightly meeting of this Association, on Friday, the 30th ult., Mr. S. Flint Clarkson, president, in the chair, a vote of thanks was, on the motion of Mr. Page, accorded to Mr. R. Norman Shaw and other gentlemen, for allowing the members to visit the Bedford Park Estate on the 24th ult., and it was announced that on this (Saturday), the 7th, the members would visit the Mercers' Company's Buildings, Old Jewry.

A letter was read from Mr. J. D. Crace, hon. secretary of the West London School of Art, calling the attention of the members of the Association to the school.

The President alluded in appropriate and feeling terms to the great loss which the architectural profession had sustained in the sudden death of Professor E. M. Barry, R.A., and called upon Mr. Thomas Blashill, who moved,—"That the President and Secretaries be requested to put into form a motion of condolence to be sent to the family of the late Professor Barry." Mr. Blashill remarked that Mr. Barry bore a highly-honoured name, and bore it most worthily. As students, and in view of the lectures which were in course of delivery by the Professor at the Academy, the members of the Association might most appropriately pass a vote of condolence.

Mr. J. S. Quilter seconded the motion, remarking that his earliest associations with architecture were with the late Professor Barry.

The motion was unanimously adopted.

Mr. Robert Walker then read a paper on "Competitions," the substance of which we print on another page.

In the discussion which followed,

Mr. W. F. Potter said that for the last five-and-twenty years he had read the professional journals, and he found that what was being now said about competitions was "the same old tale." The question was very fairly brought before the House of Commons some years ago by the late Sir William Tite, who pointed out the abuses of the system. The Home Secretary of the time replied, in effect,—"You have made out a very good case for architects, but we don't make laws for their special benefit. If you can make out that the public at large suffer, we might make some alteration in the law." He did not infer that Mr. Walker advocated legislation on the subject, but he (Mr. Potter) was in favour of an Act (if it could

possibly be obtained) to compel competition committees to take the advice of competent professional assessors. Of course he knew it might be said that the architects had the remedy in their own hands: they could refuse to compete. He contended that the question was to a large extent one for the public, and instanced a case in which a building, which was originally to cost 4,500*l.*, had not been completed for less than 20,000*l.*, owing to the mismanagement of the competition. In conclusion, he moved a vote of thanks to Mr. Walker for his paper.

Mr. Thomas Blashill said that this question of architectural competitions seemed to crop up again and again, at intervals of five or six years, but nothing new was forthcoming. Seven years ago* he had himself brought the subject before the Association, and had clearly shown the disadvantages of the system, but in a full meeting only four hands were held up in support of the position he took. He might be said to take low ground when he asked, Could it pay them to go in for competitions,—could it pay them in any honourable sense of the word? Would they stand better in the eyes of the public for competing? He thought not, and advised all young architects thinking of taking part in competitions to study the statistics given in Mr. Porter's paper recently read before the Institute of Architects. Except in a few remarkable instances, where there was very great talent on the part of the successful competitor, the competition system could not possibly pay anybody who took part in it. He had heard men who had had fair success in competition say that they won one competition in twelve,—and that could not possibly pay, especially taking into account the number and elaboration of the drawings now so frequently demanded. But, to look at the matter from what might be said to be a less mercenary point of view, could the competition system be said to pay morally? Could it be said to tend to the advancement of the art and profession of architecture? He thought not. The result of the immense development which had taken place in architectural draughtsmanship through competitions was that there existed within the profession a large number of men perfectly competent to design the finest palace or the largest building that was ever seen,—on paper,—but who had never had a fair opportunity of seeing practical work, even on paper, still less of obtaining practical knowledge by seeing works in progress. He could not agree with Mr. Walker in seeing any similarity between the two cases of a committee inviting competition designs, and of an architect inviting tenders from builders. If the competition system were to be continued, there should be no open competitions, and certainly none under mottoes. Everything should be perfectly open. In all limited competitions, however, each architect invited to compete should be paid an honorarium sufficiently adequate to fully remunerate him for his labour.

Mr. Thomas Porter, after a brief reference to the late Mr. E. M. Barry, said he thought all present were much indebted to Mr. Walker for the practical way in which he had brought the subject forward. The question at issue was not whether the competition system should be abolished or not,—he did not think the time had arrived when it could be abolished; but the time had certainly arrived to attempt to put the system on a better footing. That was a thing which the public could not do, however desirous they might be, but it was a thing which the profession must do. He believed that the public were supremely indifferent to the question, and that if the profession would dictate its own terms in the matter, the public would readily fall in with them. While agreeing with much that Mr. Walker had said, he did not agree with him in seeing any parallel between builders tendering and architects sending in competition designs. The motto system he considered to be a delusion and a snare. He could not altogether agree with Mr. Walker in utterly proscribing perspectives in competitions. By all means, if architects took part in competitions, let them go in for them thoroughly, and not exclude perspectives, provided, of course, that they fairly represented an honest design. There ought to be no difficulty in getting the profession at large to agree upon a simple code of rules as to competitions.

Mr. R. E. Pownall said that the Institute suggestions as to competitions, although neither perfect nor widely known, had had some good effect, judging by the conditions which had been issued by some promoters of competitions. It would be neither prudent nor desirable, he thought, to insist upon the observance of many rules at present; the aim should rather be at first to promulgate one or two important and fundamental rules, which would be likely to be generally adhered to,—such, for instance, as the rule that no architect should compete unless a professional assessor were appointed.

Mr. J. D. Mathews said he thought that Mr. Walker had discussed the subject of his paper in a very sensible and practical way, but he was surprised to hear the very unpractical remarks of their usually practical friend, Mr. Blashill. The fact was that the competition system could not be abolished; it had become so thoroughly part and parcel of the work of the profession, that architects must take part in it more or less, although no doubt the less the better. Competition had been the means, and probably the only means, of bringing prominently forward many unknown men, who but for it would never have occupied their present positions. Of course there was no doubt that the system was more or less abused, both by the public and by architects themselves. Much amelioration of the system would be afforded if the great bulk of the members of the profession would agree to certain conditions under which alone they would compete. The members of the profession must make up their minds to look, not only to themselves, but to their profession; and in looking to their profession they would be looking to themselves. Undoubtedly there should be a professional assessor appointed in all competitions. As to the City of London School competition, to which reference has been made, he thought it only right to say that Mr. Murray, the principal assistant in the City Architect's Office, would be the last person to unduly put himself forward to do more than he had been instructed to do by the committee. In that competition, he believed the committee were told by their legal advisers that it would be positively illegal to exhibit the designs submitted.

Mr. Cole A. Adams said the services of a professional assessor should be retained by promoters of competitions in all cases, for laymen were not competent to pass judgment on architectural drawings.

Mr. J. Johnson also insisted on the need of having professional assessors in all cases, urging that they should be appointed at the outset, so as to advise and assist the promoters in drawing up the conditions.

Mr. R. C. Page thought that cost should not be made a condition in competitions,—or, at any rate, competitors should be allowed more discretion as to that item. In his opinion, the promoters ought to institute the competition, not for a design, but for an architect, selecting him from the designs.

The vote of thanks having been carried,

Mr. Walker, in reply, said he believed we lived in a time of jobbery and corruption, and that there never was such jobbery and corruption as existed in connexion with architectural competitions. Mr. Blashill appeared to be the only speaker who wanted to put them down altogether. As to legislation, suggested by Mr. Potter, architects could not get Acts of Parliament to compel people to make their buildings safe, and he did not think they would get an Act to make competition committees honest. In reference to the City of London School competition, he had not the slightest intention of saying anything against Mr. Murray, who was one of his oldest personal friends. The mismanagement of that competition lay with its promoters, some of whom, however, he had reason to know, thought all the more of the competitors for the stand they had taken in claiming what they believed to be bare justice. He did not agree with Mr. Adams as to the advisability of insisting upon the assessor's award being regarded as final and as binding on the promoters of a competition. Promoters would never concede that. It was another thing to ask them to be guided by the evidence of skilled assessors in forming judgment on the designs submitted to them. If architects insisted upon that they would have it conceded. Two points had been dear to him in the profession. First, he had desired to see houses safe; secondly, he had desired to see competitions fairly conducted. There was another question which must come on, and to which he meant to devote his attention. Architects required to stand together in closer combination. It was of no use going to the Institute,—that body was a learned society; they wanted something more; in short, they wanted a trade-union. Lawyers had such an organisation, and architects must have it, in order that the public might see their *locus standi* in professional matters. There was a body of public opinion forming in respect of the necessity of properly-qualified architects alone being allowed to practise, and once that body of public opinion were given practical effect, whence would promoters of competitions get their designs if all competent architects combined to ignore unreasonable demands upon them by competition committees? In conclusion, Mr. Walker said he proposed shortly to submit to the Association a resolution on the subject.

* *Builder*, 1873, p. 372.

"A NOTABLE HOUSE" CRITICISED.

Sir,—Reading in your issue of the 24th ult. an account of the ventilation of Tettenhall, as given by its distinguished owner, Lieut.-Col. Thorneycroft, it struck me that a very important question was raised by the description given of the means used to ventilate the music-room,—said to accommodate 600 people. The point in question is the efficiency and practical utility of a self-acting system of ventilation dependent upon the wind for its action, compared with a system made to operate by artificial means,—such as fans driven by water or steam power.

Col. Thorneycroft states that on the roof of the music-room he has fixed four large revolving screw ventilators for the purpose of extracting the vitiated air. For the supply of fresh air he has fifteen vertical tubes (recently called "Tobin tubes," but which were in extensive use many years before Mr. Tobin's name was connected with them) admitting a total of 800 cubic feet of air per minute; two fans or patent air-propellers, driven by water-power, and another fan by steam, one of the water-fans giving 200 cubic feet, the other 100 cubic feet, and the steam fan 100 cubic feet of air per minute. I may here remark that it is a pity that the quantity of air passing through the extracting ventilators was not also tested, as it would have made the experiments more complete and instructive. The question arises, if those screw ventilators are of the size and power described, would they not be sufficient of themselves, combined with the vertical tube air inlets provided, to change the air in the room to the extent of 1,200 cubic feet per minute, independently of the water and steam power employed?

The above figures give 300 cubic feet for each ventilator, which is surely not a very extravagant amount for such large ventilators. If they extracted that quantity, the equivalent would be bound to be drawn in through the simple air inlets. Supposing they did do so, where is the necessity for using elaborate machines driven by water and steam power, which are not only liable to get out of order, owing to their necessarily delicate working parts, but very expensive to purchase and keep up?—the after-expense being generally greater than the first cost. Then the attention which is necessary to set them going, and keep them in working order, is often an insurmountable obstacle to their efficient action and usefulness, as experience has sufficiently proved that you will not get the persons who may be deputed to look after such apparatus to give the required attention. As an instance of this, having occasion to call at an office in the City, where I knew fans made to revolve by water were used for ventilation, I, out of curiosity, tested one, and found it not to be acting. Inquiring the cause, I was informed that it had gone out of order some time ago, and made such a clatter and noise that, proving a nuisance to the occupants of the office, they had to dispense with the use of it. This practically confirms (if further confirmation be required for what is a well-known and admitted fact) the statement made by Professor Corfield in a lecture recently delivered by him on ventilating appliances at the University College, that revolving fans driven by water, and all other ventilators having movable parts, were not to be recommended, owing to their liability to get out of order and break down.

I was much struck with the poor results shown by the fans driven by water, one of which is described as being of large size: 200 and

100 cubic feet respectively per minute are very small quantities of air for them to force into a building; and, indeed, they can only really be credited with about three-fourths of that amount, as, seeing that almost fifty cubic feet were passing in through the ordinary air-tubes, the same quantity would naturally pass in through the external openings of the water-machines. The fan driven by steam-power showed equally poor results,—only 100 cubic feet per minute. Two plain air-tubes (which might be applied at a trifling cost) are thus practically demonstrated to be as efficient as these elaborate and costly contrivances. In marked contrast to this I may mention an instance where an entirely self-acting ventilator, having no movable parts whatever, and dependent solely upon the wind for its action, showed results very different from this. (I observe that Col. Thorneycroft has this ventilator in use at Tettenhall.) I refer to Boyle's patent self-acting air-pump ventilator. The instance referred to is, when it was tested at the Rowland Hill memorial church, which is ventilated by the air-pump ventilator; and the ventilation of which I see is pronounced by the pastor, the Rev. Newman Hall, to be "very successful"! I read the account in the *Sanitary Record* some time ago. The experiments were conducted by Mr. Paull, the architect, the builders of the church and others being present. The ventilator, on being tested with an anemometer, was found to be extracting 6,000 cubic feet of air per minute, or 360,000 cubic feet per hour. The experiments lasted some time, and it is stated that there was but a moderate breeze blowing during the tests. The ventilator was 6 ft. in diameter, with a 2 ft. shaft. I observe that the patentees of this ventilator, Messrs. Robert Boyle & Son, state that they have the opinion of high scientific authority to the effect that there is not a time during the whole year but there is sufficient wind to make the air-pump ventilator act.

In the summer time, during warm weather, the doors and windows may be kept open with safety day and night, and an ample change of air thereby secured, mechanical aids to ventilation not then being very necessary; it is in cold weather, when doors and windows cannot be kept open without serious danger, that ventilating appliances are most required and useful, and then there is always plenty of wind (if that is a *sine qud non*) to make self-acting non-movable roof-ventilators operate. Does not this go to prove that a self-acting and natural system of ventilation is superior to, at all events, the mechanical appliances in use at Tettenhall? The figures given for both systems (and who can argue against figures?) conclusively prove that it is so!

As for its efficiency in calm weather, I read in one of Messrs. Boyle's pamphlets on ventilation, which I have before me, that they guarantee that the ventilation of every building to which their system is applied will be satisfactory and efficient at all times of the year, and in all states of the weather. I likewise observe that they have successfully ventilated many important public buildings in this and other countries, giving this guarantee. Dr. Richardson, one of our highest authorities on ventilation, pronounced this system to be "a perfect method of ventilation," and this opinion is endorsed by a number of the leading scientific and practical men in the kingdom, including Sir William Thomson, the electrician; the late Sir Gilbert Scott, &c., who speak in the highest terms of it, the result of long practical experience and careful and extended experiment. It has the advantages of having no movable parts to get out of order, requires no attention, and the first cost is the last.

A scheme of ventilation, to be popular and useful, must at once be simple (it cannot be too simple) and cheap, so that it may be within the reach of the poor as well as the rich. These two great facts will, in my opinion, always prove insurmountable barriers to the general adoption of any system which is elaborate, costly, or requires attention.

I think it would have been more advisable if fixed ventilators had been used at Tettenhall for the ventilation of the soil-pipes, drains, and sewers, as the working parts of revolving ventilators soon get destroyed by the action of the gases, when they then become worse than useless. Ventilators of this description should never be used for such a purpose. In your columns you lately gave a description of the improved methods of soil-pipe ventilation invented and introduced by Messrs. Boyle & Son, which I consider would have answered the purpose much better.

With respect to the comparative merits of "open pipes" and "extracting ventilators," I was glad to see that deplorable blunder, the "Kew Experiments," so emphatically condemned in the official report on the ventilation of Tettenhall; and it is another endorsement of what is now the general opinion with regard to those experiments, and as expressed by the *Times*,—"that the method of testing was incorrect, and therefore the tests are valueless. . . . that neither in the case of either of the cowls nor the tubes, was their true value as extractors ascertained."

W. G. S.

MODERN ART AND THE LATE PROFESSOR BARRY.

SIR,—If, in addition to those personal and professional reminiscences which you have announced your intention of recording with reference to the untimely death of Professor Barry, you would allow space for a word of tribute from an outsider, I believe I may say that I can represent not a few of your readers, viz., those who are not artists themselves, but who are interested in all that concerns art and anxious to see it flourish among us.

I had not the honour of the learned Professor's acquaintance, but as a constant reader of your invaluable journal for now twenty years, I was well acquainted with his works; as a lover of art even in the streets of London, I could not be ignorant of his merits; and as a listener last year at his lectures, I was a sincere admirer of his taste, tact, and skill.

It was owing to a paragraph in the *Builder* that I learned last year the feasibility of entering the sacred portals of the Royal Academy for the purpose of hearing the lectures. When I am in Paris, in the neighbourhood of the École des Beaux-Arts, on a lecture-day in the season, I walk freely into that splendid establishment, and without any let or hindrance sit at the feet, physically, of the *hémicycle* of Paul Delaroche, and, metaphorically, of M. Taine, deriving, I need hardly say, instruction and pleasure from both. I had often regretted that art was more exclusive at home. Sending my card, however, at your suggestion, to the learned Professor (a course which I wish other outsiders would follow), I at once received a card of admittance, of which I eagerly and thankfully availed myself. As I sat listening to Mr. Barry's sketch of the work and influence of Brunelleschi, Bramante, and Sansovino, I could not help thinking that we were approaching somewhat nearer the end of that gloomy period generally called the "Battle of the Styles," and that if there was a man capable of infusing some modern spirit and some original handling into what has too long been the *disjecta membra* of the various admirable architectures of the past, that man was the distinguished son of a distinguished father to whom England owes her greatest modern building.

It is idle for any one to deny the fact, and I am sure that you, sir, will bear me out, when I say that the British public are tired of Greek porticos and Roman colonnades. It must also be owned that though most of us glory in Gothic architecture, we are none of us quite as much at our ease as we should like to be under the groined vaults, or amid the arching buttresses by which our architects would fain have us believe that we are in the thirteenth century yet. I do not know whether our learned judges will feel more at ease in their new palace in the Strand than has been the case with our worried legislators in theirs by the Thames, but if analogy is to guide us towards a decision, it will hardly be a satisfactory one for a practical people. The Professor, whose loss we deplore, aimed at being a man of his day, neither a Greek nor a Goth, and in his lectures he strove to place the true principles of beauty above the mere question of form. I am, of course, not competent to judge the artistic value of his work, but I think even an outsider can praise the spirit of his teaching, as showing the only possible platform for the art-education of the future.

Passing from the professor to the architect, may I, without going *ultra vires*, state what I think four out of every five passers-by would readily acknowledge if asked, viz., that of all the notable buildings recently erected in London, the new Temple Chambers on the Thames Embankment form the most pleasing and successfully-treated group? I have no means of knowing what architects think of this last work of Professor Barry, but I feel confident that I have expressed the opinions of the general public, which is after all in such matters the court of final appeal.

One more thing requires to be said, and said neither by a rival, a pupil, nor a friend, but by a perfectly impartial outsider; and that is, that on the face of facts publicly known, the younger like the older Barry was an ill-used man. Although, no doubt, professionally a successful architect and an eminent Academician, yet in a national sense it cannot be denied that he did not come by his own. The story of late public competitions is too well known to your readers to bear repeating; and I suppose that in the House of Commons, as well as in artistic circles, it was taken for granted that a rough sort of justice would be meted out to the successful competitor for the Law Courts, by his being entrusted, sooner or later, with that rebuilding of the National Gallery which we all hope to see some day, and of which we have, alas! but an unfinished fragment. Such a compromise might or might not have been satisfactory; but in any case, it is now beyond our reach; and I cannot help expressing what I hope many will feel,—aggravating the regrets caused by such an untimely loss,—a certain sense of compunction at national injustice inflicted on a distinguished artist, and borne by him to the grave.

Perhaps I may best apologise for the length of this letter by closing it with a practical suggestion. We have museums of paintings, of drawings, of sculpture, of decorative art, of furniture. Where is our museum of architecture? Where can the public go to to form their taste by contemplating the designs of Jones, Wren, or Barry? The so-called Architectural Courts at South Kensington contain admirable reproductions of woodwork, brasswork, marble-work, and bronzework which adorn the wonderful Continental cities of Bruges, Hildesheim, and Nuremberg. The still more valuable, because less known contributions from Spain and India are most interesting, and I doubt not most useful; but, if I except the Sanchi Tope, I really know of nothing under that gigantic roof illustrative of "building," unless it be the sketch of the principal monuments of the world, which, by the bye, is the most popular lion of the place. When we want to see the works of Landseer, Titian, or Cimabüé, we go to Trafalgar-square; for those of Phidias, Praxiteles, or their disciples, we go to the British Museum. Raffaelle's can be moved from Rome to Paris, and it appears even obelisks from Egypt to London! But who shall bring to us the Porta Nigra from Trèves, the Maison Carrée from Nismes, if we cannot go there; and how shall we learn to appreciate the work of Scott or Barry, if we cannot visit the lovely church at Doncaster, or the stately halls of Crewe? I know that there are some designs from recent competitions exhibited at Kensington, and that in the Diploma-room at Burlington House there is a screen containing some works of interest; but, surely, is it too much to ask that architecture, the parent of the arts, should also have its museum, and that every living artist, at all events, should be represented somewhere by full drawings of some of his works?

The reminiscence of Professor Barry's admirable designs in the two competitions to which I have alluded,—the idea that they will be stowed away with many others in official storehouses, never again to delight the artists or instruct the students,—has emboldened me to make a suggestion, crude, no doubt, but which will take shape and elegance if you, sir, give it your artistic consideration, and room to grow in your admirable journal.

REGINALD W. SMITH.

PAPERHANGINGS, BEDFORD ESTATE.

SIR,—We have just read your notice of the visit of the Architectural Association to the Bedford Park Estate, with the interesting descriptive account of the buildings and decorations. In the concluding remarks, where the subject of wall-papers is mentioned, you inadvertently do us some injustice by referring only to Messrs. Morris, & Jeffery & Co., while the fact is that a very large proportion of the papers are of our manufacture, being our own "Queen Anne" patterns, although in many cases worked in colourings specially suggested by Mr. Aldam Heaton for this Estate.

WM. WOOLLAMS & Co.

The Late Professor Barry. — Messrs. Mayall, of Brighton, have sent us a recently-taken photographic portrait of the late Mr. E. M. Barry, R.A. It is an excellent likeness.

ARCHITECTURAL COMPETITIONS.*

The next important competition took place in 1863. It was the—

Liverpool Exchange Competition.

The premiums offered were considerable, being 1,000*l.* for the best design, 250*l.* for the second, and an equal sum of 250*l.* for the third; and, indeed, this was the largest English competition since the Government Offices. The problem to be solved was the object of realising a fair rate of interest for the capital invested, and as the land cost 80*l.* per square yard, it was necessary, in designing these buildings, to utilise every inch of space. Forty-four designs were submitted, only three being of Gothic character; and about fifteen elaborate drawings were required to properly depict each competitor's views.

The successful competitor was Mr. T. H. Wyatt, who carried out the work. The second premium was awarded to Messrs. Conningham & Audley, of Liverpool. The third premium was awarded to Mr. Parnell, of Newcastle-on-Tyne.

New Museum (South Kensington) Competition.

To cover the whole of the area occupied by the Exhibition in 1862, another great Government competition took place in 1864, with the customary ambitious programme of covering an enormous area of ground with magnificent buildings; indeed, so large was the area embraced, that it included the whole of the site of the Exhibition of 1862. Thirty-three designs were submitted, and they were mounted on 248 straining-frames, some containing as many as a dozen drawings on one frame. This competition was also under the "motto system," but again many of the designs were at once recognised. The labour was really enormous, and the results, as usual, most disheartening and disappointing; for, although something has been done, and the Natural History Museum, now being carried out from the designs of Mr. Waterhouse, is the outcome of the competition, the extent and area of even that important building are small compared with the extent of the buildings which the Government desired to embrace in the competition. The first premium of 400*l.* was awarded to Captain Fowke. The second premium of 250*l.* was awarded to Professor Kerr. The third premium of 100*l.* was awarded to Mr. Brodrick, of Leeds. The drawings in the competition must have been very costly, but I cannot say what may have been the loss to the profession by their preparation.

Manchester Town-hall Competition.

Exactly ten years after the Government Offices a very important building at Manchester was the subject of an open competition. I believe we are all really proud of Manchester Town-hall and of the distinguished architect who will be immortalised by that work. Mr. Waterhouse has favoured us with a description of that building so lately as February, 1877, that it is hardly necessary for me to more than allude to it. The designs sent in were 136 in number, and out of these ten were selected (Mr. Godwin being the referee) for further elaboration; and the authors of the designs, eight in number, were invited to a second competition.

In February, 1868, the matured designs of the eight gentlemen were sent in, and each set comprised more than twenty elaborate drawings. Professor Donaldson and Mr. Street were appointed the professional referees to advise the Corporation in the selection of the best design. It will be regretted that their award caused some complication (as more recently in the case of the London Law Courts) from dividing the artistic merit of plan and elevation, but as they were of opinion that the design to which they awarded the fourth place was one excelling all others in regard to plan, and was worthy of premium in respect of elevation, it seems a pity that it was not at once awarded on its whole merits the first premium, as it might have saved some very natural disappointment to the three other competitors who stood higher under the head of "excellence of elevation." There can be no doubt, however, that the distinguished referees were quite warranted in recommending for execution the design highest in merit as regards *plan*—especially as it must have been well known how capable the author of that plan was to modify his elevations and to make them perfectly suit the requirements of his clients. I must be allowed to say that I was very much struck with the lovely simplicity of the plan; indeed, at a glance it impressed one with the complete arrangement, reminding one of the masterly treatment in a similar way of the Houses of Parliament. The cost of the designs in this competition must have been very large, as the drawings were numerous and of the most elaborate character, the building having four façades—all highly important—to be artistically treated. Probably not less than 15,000*l.* was spent on the drawings; but at least the profession have the satisfaction of knowing that it is one of the very few competitions that have been successful so far as the executed building is concerned.

I will now come down to more recent dates, and give you some particulars of the competitions that have taken place during the last two years and a half, or rather that have been advertised in the *Builder* between the 1st of January, 1877, and the 30th of June, 1879. The competitions have nearly all been in the country, although there are some exceptions, such as the City of London School, the Brompton Oratory, and one or two minor and unimportant ones.

I have endeavoured to ascertain the opinion of the promoters of competitions on the system after their experience of having obtained designs and employed the successful competitor to carry them out, and I have addressed over 100 persons on this subject with a view to finding out if they had to do the work over again and obtain designs for similar buildings, which of three courses they would follow, whether,—

a. To select an architect at once in whom they had confidence.

b. To select a limited number of architects to compete, giving each a sufficient honorarium to cover out-of-pocket expenses; or

c. To again advertise for designs in open competition.

In nearly all the larger competitions and a great number of the smaller ones I have been very courteously supplied with the results of the competitions, and while in some cases an opinion has been given on the points mentioned, some express themselves as incompetent and others as unwilling to commit themselves officially as to the course they would adopt had similar buildings again to be erected. If the system of competition were not so freely opened, and any number of designs were not to be had for the mere asking, country authorities would most probably be led to place the work direct in the hands of local architects, or invite a competition among a few of them only. It appears to me that it is especially the small competitions that are bringing discredit and loss to our profession, and country architects have reasonable ground for considering that they interfere materially with their legitimate field of practice, and that architects away from the neighbourhood, although perhaps possessed with more power of making pictorial and highly-finished drawings, cannot be so well fitted to know the practical requirements of the locality.

I will take as an example Droitwich Free Hospital, a recent competition. The cost was to be only 800*l.*, and the premium offered was *one* of 5*l.* Twenty-three architects responded to this appeal, involving,—say at eight drawings to each set,—184 drawings, and putting them down at 2*l.* per drawing, the cost would be 368*l.*, or nearly half the absolute cost of the building wasted on preliminary drawings.

Recent Small Competitions.

The Maidenhead Cottage Hospital is another instance of the wastefulness of competition, resulting after all, too, in the employment of a local man (who I rather think was not even an architect). Here the proposed cost was also 800*l.*, and two premiums were offered, one of 10*l.* and one of 5*l.* No less than *eighty* architects responded to this appeal; so that, taking the designs at only two drawings to a set, and the cost of them 2*l.* each, the cost would amount to 320*l.*, or again nearly half the absolute cost of the building, and eight times the commission paid on the work.

In the north of England I have also, at Lancaster, a case where the cost of the building was proposed to be 3,200*l.*, and the premium for the best design 25*l.* The number of designs sent in was forty-two; many of them, if by London men, must have been mere waste paper, for I venture to say few young architects would go all the way to Lancaster to examine the site. In this, seven or eight drawings at least must have been required, and one, if not two, perspectives; but, still adhering to our 2*l.* principle as the average cost of each drawing, this would give 336 drawings, or 672*l.* as the cost of the designs; the commission on the building when carried out coming only to 175*l.*, and that without deducting anything for office expenses.

Basingstoke Hospital, costing 1,200*l.*, was competed for by 32 architects; number of drawings say 256, costing 512*l.*; commission on building, 60*l.*; loss to the profession, at least 450*l.*

Llandudno Board Schools, costing 4,000*l.* (and for which the premium of only 10*l.* was offered), called forth 19 designs.

Leek (Staffordshire) Hospital, costing 1,700*l.*; 17 designs, which at eight drawings each, equals 136, or costing 272*l.* Commission on building, 85*l.*; loss to the profession, nearly 200*l.*

Shropshire Hospital, estimated cost, 6,000*l.*, called forth 23 designs, costing at least 408*l.*; commission on building, say 300*l.*; and allowing one-third for office expenses, 200*l.*, or a loss of 208*l.* to the profession.

Ashford School Board Schools, proposed cost 2,700*l.*, called forth no fewer than 29 competitors (and I venture to say many never visited the site); cost of drawings, say at 2*l.* each, 464*l.*; commission on building if executed, 135*l.*; dead loss, at least 329*l.*

Jarrow Corporation Hospital.—Cost, 4,500*l.*; 24 designs submitted; number of drawings, say 192; value, 384*l.*; commission on building, 225*l.*; less office expenses, say one-third, 75*l.*; net loss to the profession, 234*l.*

Yeadon Town Hall.—Cost, 5,000*l.*; number of designs, 30,—no doubt of an elaborate and artistic character in some cases; cost of drawings, say 480*l.*; commission at 5 per cent., 300*l.*

A Lich-gate at Carmarthen.—Cost, 250*l.*; absolutely called forth 36 designs in competition for a premium of 20*l.*

Cirencester Board Schools, outlay between 4,000*l.* and 5,000*l.*; number of designs, 29; drawings, say 233 at 2*l.* each, 464*l.*; loss to the profession still very considerable.

Laying out the Elms Nursery Estate at Taunton, for which a premium of 50 guineas was offered, called forth no less than 120 competitors.

A Drinking Fountain, to be erected opposite a Suburban Railway Station, and for which the liberal premiums of *one guinea* and *half a guinea* were offered, called forth 40 designs.

A Drinking Fountain at Bath was competed for by 29 architects, Mr. Goodridge, of that city, being successful.

Sutton Public Hall, costing only 2,000*l.*, drew forth 30 designs. Here, again, the drawings must have involved much labour, and have been numerous,—taking, as before, eight for each set, would be 240 drawings, value or rather cost of which, say 480*l.* Commission on building, 100*l.*; dead loss to the profession, 380*l.*

Bolton Infirmary, with premiums of 50*l.*, 30*l.*, and 20*l.*, resulted in 36 sets being sent in, Mr. Freeman, of Bolton, taking the first premium. I have not been able to ascertain the cost of this building.

Putney Baptist Chapel, to cost 3,500*l.*, engaged the attention of 33 competitors, involving at least 254 drawings, and perhaps one or two perspectives; but putting the cost still at 2*l.* per drawing, gives 528*l.* as against 175*l.*, the commission on the building.

The instances I have quoted are all from competitions between the beginning of 1877 and the middle of last year. Now, kindly consider the more important and costly competitions during the same period Take first:—

Scarborough Spa Buildings.—This competition was one of enormous labour, as it involved the laying out of the estate as well as the buildings. 480*l.* was the aggregate sum offered in premiums, and 40,000*l.* was the contemplated outlay. *Thirty designs* were sent in; it is difficult to assess the cost of such designs. The commission on the work would reach 2,000*l.*; but the cost of the thirty designs in competition would take a considerable proportion of such sum, so that even on this important work the profession were but small gainers, if indeed there was not an absolute loss.

Wakefield Town Hall.—A costly competition, in which 35 architects took part, and which would require at least 10 drawings to each set, or in all say 350 drawings. I do not think any one of these, even by a rapid draughtsman,

* From a paper by Mr. Thomas Porter, read before the Royal Institute of British Architects on the 26th ult. (see p. 125, *ante*).

could have been made in less than three days, even after the studies of the design were completed, so that no set of drawings could have been of less value than 50*l.*: the whole thus costing say 1,850*l.*; time and travelling expenses in visiting Wakefield would have to be added, so that nearly 2,000*l.* may, at a moderate calculation, be considered the cost of this important competition. Mr. Collcutt was the successful competitor, and is carrying out the works. The contract price is 43,700*l.*, yielding a gross commission of 2,175*l.*, and deducting office expenses, at say one-third, gives 1,450*l.* net. Preliminary drawings in competition costing 2,000*l.*, a large loss is involved to the profession, even on such an important competition.

Manchester Baths and Washhouses,—19,600*l.*,—drew forth 31 designs.

Reading Town-hall.—A most unsatisfactory competition was engaged in by the architects, and ended in all the premiated designs being set aside, and I understand the referee was afterwards employed to make a design,—the one being carried out. I am quite sure I shall only express the sentiments of all present when I express the opinion that, as part of the group of buildings had been designed and beautifully carried out by Mr. Waterhouse, it would have been the right and proper course to have called in his professional aid to carry out the extension.

Brompton Oratory was competed for by 30 architects, and the designs in this case must have been very costly and elaborate. Mr. Gribble is to carry out the work. The competition designs varied between 40,000*l.* and 140,000*l.*

Aston Free Library was the next competition of importance,—18,000*l.* being the proposed expenditure; 19 architects competed.

Yarmouth Town-hall,—26,000*l.* Forty architects competed. The drawings could hardly cost less than 30*l.* a set, or 1,200*l.*; and the commission on the building would not exceed 1,300*l.*, and not more than about 900*l.* net after all expenses. Here, again, is an example of a large building being a loss to the profession.

Over-Darwen Town-hall and Market Buildings, 50,000*l.* Twenty-four architects competed, Mr. Charles Bell, of London, taking the first premium, and probably carrying out the works.

Gloucester Lunatic Asylum,—94,000*l.* Twenty-eight architects competed. The drawings in this case were full of labour and of great size, as the buildings involved an enormous frontage One competitor has given me full particulars of the cost of his designs, and allowed me to see his drawings. The ground-plan measured, out to out of walls, 6 ft. 5 in. to a 16th scale, equal to 1,232 ft. frontage. The set of drawings I examined embraced three plans, three elevations, no less than six sections, and a large perspective, in all thirteen drawings. The absolute cost out of pocket, without the least regard for the competitor's own time (who I may say personally worked hard at the drawings), was 140*l.* If all spent the same (and some must have spent even more), the cost of this competition would be 3,920*l.* The result of the competition has been that only 12,000*l.* is at present to be expended, which means a mere commission of 600*l.*; thus the profession, as a body, have already lost 3,300*l.* on this one competition.

City of London School,—51,000*l.* Fifty-three designs were submitted. This, again, was a somewhat costly competition, and I should fear will bring no financial benefit to the profession, although there is no reason to think it was unfairly conducted. Some, however, were annoyed that no professional referee was called in to award the premium.

The number of competitions advertised in the *Builder* during the two years and a half from January, 1877, to Midsummer, 1879, amounted to 119, or equal to, say, forty-eight annually; but these do not include any that may be only advertised in other professional papers, so that it will be right to say that at least one competition weekly is advertised, making fifty-two in the year. The average number of competitors in a competition I find by careful investigation to be twenty-eight. The average number of drawings is not easy to arrive at, but the average minimum number ought not to be taken at less than eight, say at least two plans of the floors, one block plan, two elevations, two sections, one perspective view. Most important competitions would have twelve or fourteen, and some more, but let us assume only eight as the average, to be on the safe side. This will give 224 for every competition, or 11,648 in the year. If you agree that the average cost of a competition drawing, including all expenses, cannot be less than 2*l.*, at the very lowest computation, this gives the outlay annually on competition drawings as 23,296*l.* Taking the same calculation as applying to the twenty-three years since the Government Office competition, it gives 535,808*l.*, or more than half a million sterling, expended on preliminary drawings, for works executed through the medium of competition. I cannot but think, however, that this estimate is really very much below the absolute fact, and that the cost of competition drawings considerably exceeds an average value of 2*l.* each. Moreover, the above calculation takes no account of any limited competitions, or any mere local competitions in the country. In round numbers, every competition is an absolute loss to the profession of 500*l.*, without reckoning anything for principal's time. It may be said that the profession lose 25,000*l.* annually by competitions.

I thoroughly believe, also, that to be constantly or even principally engaged on competition drawings, is the worst possible training for a young man, because difficulties of construction are not entered into by the majority of competitors; and should even difficulties of arrangement occur, they are slurred over and avoided, under the plea that it will be ample time to consider such points, when the competition is obtained, and the working drawings have to be prepared. I will say nothing on the point of loss of dignity to the profession, or of all the concomitant evils of the system, as they are too well known to need comment.

The competition system has not at present gone beyond what may be called buildings of a public character, or at least for public use; but, considering the large number of men employed constantly on this work, it is necessary to face the possible danger of its being some day extended to works of a private character, resulting in a scramble for every commission, in which case the profession would be certainly ruined both artistically and financially. I believe the members of the profession have the whole evil quite within their grasp, and that the public generally are supremely indifferent as to competitions. If they can obtain any number of designs by merely advertising for them, they are pleased to see the pictorial results of their appeal; but if the profession determined as a body not to compete except on honourable and reasonably remunerative terms, the public would soon be educated to see the wisdom of such action; and that business men would also believe that what was fairly paid for was better worth having than the work obtained for nothing.

NEW CLUB BUILDINGS IN GLASGOW.

RECENTLY the premises of the "New Club" at Glasgow were opened to members. On the previous evening the inauguration of the buildings took the form of a banquet, which was attended by a large number of the leading citizens of Glasgow and gentlemen of political and social influence from Edinburgh and other parts of the country. The building is situated in West George-street, in the centre of the higher class business part of the city. Architecturally speaking, the structure is Classic in design, and, like many of our modern edifices, has no claim to represent particularly any special school of art. The sculpture and stone carving of the front elevation has been designed and executed with that skill which always characterises the work of Mr. Mossman, a sculptor well known in Scotland.

Glasgow, with all its wealth and commercial magnitude, is by no means a great admirer of clubdom. No better proof of this can be adduced than the fact that the new building to which we are referring is only the second structure which has been specially designed in the city for a club. The first was the Western Club buildings at the corner of Buchanan and St. Vincent streets. The reason for the absence of clubs of good standing is that the better classes of Glasgow are a home-dining people, with inclinations not to return to the city in the evening. Indeed, very few do go to business after dinner, unless at a time of extreme pressure. Glasgow, too, is well supplied with first-class luncheon-rooms, that provide cheaper, and perhaps better fare than can be found in clubs. The praises of Scotland, in fact, in this direction have been sounded in nearly every English journal. What Englishman visiting Glasgow has not returned to the South delirious about the fourpenny, sixpenny, eightpenny, or shilling luncheon he has had in Lang's or Fergusson & Forrester's. Cheap and good luncheoning, therefore, may be safely put down as forming part of the barrier which so long existed to the establishment of clubs in the commercial metropolis of Scotland. There are no political clubs of consequence in the city, but the present impetus may excite ideas in that direction.

The internal arrangements of the new building are of a complete description. The site extends back a distance of about 100 ft. On the level of the outer-entrance hall at the principal door in West George-street, are placed the porters' room, strangers' room, club-master's room, and lavatories. By a short flight of steps the minor hall, lighted by a dome, is reached. It is 20 ft. square. The main entrance to the principal dining-room is from the inner-hall; and in connexion with this again are the service-rooms and butler's pantry. This dining-hall is 70 ft. by 30 ft. The main staircase also rises from the inner-hall. On the first landing are the reading and writing rooms, the one 40 ft. by 26 ft., and the other 30 ft. by 20 ft., the common height from the floor to ceiling being 15½ ft. Above the reading-room level facing West George-street are the private dining-rooms, breakfast-room, committee-room, and card-room; and on the same floor, but in the back part of the building, are two billiard-rooms (one is lighted from the roof) and the smoking-room. There are fifteen bed-rooms above the floors mentioned. The building was planned by the architects, Messrs. Campbell Douglas & Sellar, after approved places of the kind in London.

The work connected with the structure was executed by the following firms:—Mason, Mr. James Watson; wrights, Messrs. William Cowan & Son; plumbers, Messrs. Wallace & Connel; stained glass, Messrs. Campbell & Smith, London; Messrs. Adam & Small, Glasgow; Messrs. W. & J. Kier, Glasgow; and Messrs. McCulloch & Gow, Glasgow; wood-carving, Messrs. Ross & Manson and Mr. John Craig; ornamental wrought-iron work, Mr. Adam, Partick; ornamental cast iron, Messrs. Walter Macfarlane & Co.; plaster ornament, Mr. James Steel; painting, Mr. Andrew Wells; gasfittings, Messrs. Wm. Paterson & Son and Messrs. A. & J. Nisbet; and cooking-range work, Messrs. Longden & Co., Sheffield. The furniture was supplied by Messrs. Alex. McKenzie & Co.

DOCK-BUILDING IN BOMBAY.

THE island of Bombay, although but seven miles in length and twenty-one in circumference, possesses a most capacious harbour and bay, and merely required a dock of suitable capacity to deprive the shipbuilding yards and docks on the river Thames, the Mersey, and the Clyde, of their advantage over Indian ports with regard to repairing and docking large-sized ships. This want has, at last, been supplied by the opening, on the 1st of January, of the Prince's Dock.

The building of the dock has been in hand several years. It is open for vessels drawing 23 ft. of water. This is a deep draught, and will admit of vessels of the largest tonnage. It contains 30 acres of water. The basin is a rectangle, 1,400 ft. long by 1,000 ft. broad, and the walls are 37 ft. deep.

From one end runs a large jetty 240 ft. wide by 700 ft. long, down the centre of the dock, and occupies an eighth of the rectangular span. The dock can berth about twenty-five vessels of large burden.

Complete success attended the opening ceremony, which was performed by Sir Richard Temple, the Governor of the Bombay Presidency.

Mr. Kittridge, the chairman of the Prince's Dock Company, observed at the ceremony that the grand work of building the dock was a new graft of Western civilisation put into the Eastern tree, ensuring a fresh growth of the liberality, competition, and emulation of the West, in place of the prejudice, combination, and exclusiveness of the East.

The credit of the building of the Prince's Dock was said to belong to Mr. J. Ormiston, the port-trust engineer. The visit of the Prince of Wales to the East Indies was taken advantage of in starting several important building speculations, including the Prince's Dock in question.

THE RATE OF WAGES AND THE HOURS WORKED.

The following Comparative Statement, showing the Hours worked per Week, and the Rate of Wages per Hour, in the various branches of the Building Trade in the undermentioned towns, has been prepared by the National Association of Master Builders of Great Britain (January 1st, 1880):—

TOWN.	MASONS.				BRICKLAYERS.				CARPENTERS AND JOINERS.				PLASTERERS.				SLATERS.				PLUMBERS.				PAINTERS.				MASONS' LABOURERS.				BRICKLAYERS' LABOURERS.				PLASTERERS' LABOURERS.			
	Summer.		Winter.		Summer.		Winter.		Summer.		Winter.		Summer.		Winter.		Summer.		Winter.		Summer.		Winter.		Summer.		Winter.		Summer.		Winter.		Summer.		Winter.		Summer.		Winter.	
	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.	Hours worked per Week.	Rate of Wages per Hour.
*Aberdeen	51	7½ & 8	45	7½	no	ne em-	ploy	ed	51	7½	45	7½	51	8	45	8	51	7	45	7½	51	7½	45	7½	51	7	45	7	54	4½ & 5	48	4½ & 5	not given				54	4½ & 5	48	4½ & 5
Ashton-under-Lyne	54½	8	lt dk	8	54½	8	lt dk	8	54½	7½	47	7½	54½	8	lt dk	8	54½	8	lt dk	8	54½	8	lt dk	8	54½	8	lt dk	8	54½	5	lt dk	5	54½	6	lt dk	6	54½	5	lt dk	5
Alderley Edge	49½	8½	42½	8½	54½	8	47	8	54½	30/wk.	54½	30/wk.	54½	8	54½	8	54½	8	47	8	54½	7½	49½	7½	54½	7	49½	7	49½	5½	42½	5½	54½	5	47	5½	54½	5½	54½	5½
Altrincham	49½	9	44	9	54½	9	47	9	52	8	47	8	54½	8	47	8½	54½	8½	44	8	54½	8	47	8	54½	7	44½	7	49½	6	44	6	54½	5½	47	5½	54½	6	47	6
Bradford	49½	8 & 8½	45	8 & 9	49½	8 & 8½	45	8 & 9	49½	7½	49½	7½	49	7½	47	7½	49	7¼ & 8	49	7¼ & 8	49	7¼ & 7½	49	7¼ & 7½	55	7	lt dk	7	49½	5½ & 6	45	5½ & 6	49½	5½ & 6	45	5½ & 6	49½	5	47	5
Bristol	54	7½	48	7½	54	7½	48	7½	54	7	48	7	54	7	48	7	54	7 to 8	48	7 to 8	54	7	48	7	54	7	48	7	54	4½ to 5	48	4½ to 5	54	4½ to 5	48	4½ to 5	54	4½	48	4½
Beverley	55½	7½	50	7½	55½	6½	50	6½	55½	6	55½	6	55½	8	50	8	not given				55½	6½	50	6½	55½	6½	50	6½	55½	4½	50	4½	55½	4½	50	4½	55½	4½	50	4½
Barnsley	50	7½	44½	7½	50	7½	44½	7½	50	7½	50	7½	50	8	..	..	50	7½	..	..	49½	8	..	..	49½	7½	..	..	50	5½	44½	5½	50	5½	44½	5½	50	5½	..	..
Barrow	54	7½	a46½	7½	54½	8½	a48¼	8½	54	7½	49	7½	54	8	47	7½	54	7	47	7	54	7½	54	7½	54	7½	49	7½	54	24/wk	a46½	a21/wk	54½	6	a48½	6	54	24/wk.	47	21/wk
Bolton	48½	9	45½	9	49½	9	47	9	54½	8	47	8	52	8	41½	8	49½	5/6 day	lt dk	5/6 day	52	8	47	8	52½	7	39	7	48½	5½	45½	5½	49½	6	47	6	52	6	41½	6
Birmingham	54	9	a47½	9	54	8½	a47½	8½	54	8½	a47½	8½	54	8½	a47½	8½	piece		wrk	..	56½	8½	50½	8½	56½	7½	50½	7½	54	6½	a47½	6½	54	6	a47½	6	54	6½	a47½	6½
*Blackburn	49	8½	44	8½	49	36/wk	44	33/wk	49	7½	49	7½	49	36/wk.	44	33/wk.	49	8½	44	8½	49	8½	49	8½	54	8	46½	8	49	20/ 22/	44	18/ 20/	49	24/wk	44	22/wk	49	26/wk.	44	24/wk
Burslem	...	not given		..	56	7½	48	7½	56½	..	..	..	50½	..	..	..	..	not given		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	56	4½	50½	4½	..	..	..	..
Cambridge	56½	7 to 7½	50½	7 to 7½	56½	6 to 7	50½	6 to 7	56½	6 to 7	50½	6 to 7	56½	7 to 8	50½	7 to 8	00 to	6½ to 7	½tm	6½ to 7	..	6½ to7½	..	6½ to7½	..	6 to 7	..	6 to 7	56½	4	50½	4	56½	3½ to 4	50½	3½ to 4	56½	3½ to 4	50½	3½ to 4
Coventry	56½	8	51	8	56½	7	51	7	56½	7	51	7	56½	7	51	7	..	piece	wrk	..	56½	7½	..	6¾	56½	6½	..	6¾	56½	5	51	5	56½	4¾	51	4¾	56½	4¾	51	4¾
*Canterbury	70	6½	60	6½	70	6 & 6½	54	6 & 6½	70	6 to 6½	60	6 to 6½	70	7½	60	7½	70	6	60	6	70	6½	60	6½	70	5½	54	5½	70	4	60	4	70	3½	54	3½	70	4	60	4
Cardiff	54	8	50½	8	54	8	50½	8	54	8	50½	8	54	7½	50½	7½	54	7½	50½	7½	54	7½	50½	7½	54	7 to 7½	50½	7 to 7½	54	4½ to 5	50½	4½ to 5	54	4½ to 5	50½	4½ to 5	54	4½ to 5	50½	4½ to 5
Cirencester	56½	26/wk	56½	26/wk	56½	26/wk	56½	26/wk	56½	24/ 25/	56½	24/ 25/	56½	24/ 27/	56½	24/ 27/	56½	24/ 27/	56½	24/ 27/	56½	24/ 27/	56½	24/ 27/	56½	24/ 27/	56½	24/ 27/	56½	16/ 18/	56½	16/ 18/	56½	16/ 18/	56½	16/ 18/	56½	16/ 18/	56½	16/ 18/
Cheadle	49½	8½	47	8½	49½	8	47	8	54½	7½	52	7½	54½	7½	44	7½	54½	8	47	8	54	7½	52	7½	54½	6½	36	6½	49½	5½	47	5½	49	5½	47	5½	54½	5	44	5
Chichester	58	7	47	7	58	6	47	6	58	6	47	6	58	6	47	6	58	6	47	6	58	8	47	8	58	6	47	6	58	4	47	4	58	4	47	4	58	4	47	4
Crewe	54½	8	54½	8	54½	8	54½	8	54½	7	54½	7	54½	6/ dy.	54½	6/ dy.	54½	8½	54½	8½	54½	32/wk	54½	32/wk	54½	7	54½	7	54½	6	54½	6	54½	4	54½	5	54½	6	54½	6
*Chatham	56½	7½ to 8	54	7½ to 8	56½	7 to 8	54	7 to 8	56½	7 to 7½	54	7 to 7½	..	..	..	..	54½	..	..	..	56½	7 to 7½	54	7 to 7½	56½	6½ to 7	54	6½ to 7	56½	4½	54	4½	56½	4½	54	4½	..	..	..	..
Chorley	48½	8½	..	..	54½	8½	..	..	54½	7½	..	..	54½	7	..	..	54½	7	..	..	54½	7½	47	7½	54½	7	47	7	48½	6	..	..	54½	6½	..	..	54½	5½	..	..
Dover	54	8	54	8	56½	7 & 7½	56½	7 & 7½	56½	7 & 7½	56½	7 & 7½	56½	8 & 9	56½	9	..	piece	wrk	..	56½	7 to 8	56½	7 to 8	56½	5 to 6	56	5 to 6	56½	4½ to 5	56½	4½ to 5	56½	4½ to 5	56½	4½ to 5	56½	4½ to 5	56½	4½ to 5
Doncaster	54	7	a44½	7	54	7	a44½	7	54	7	47½	7	54	7½	a44½	7	54	7	a44½	7	54	7	47½	7	54	6	a44½	6	54	4½ to 5	a44½	4½ to 5	54	4½ to 5	a44½	4½ to 5	54	4½ to 5	a44½	4½ to 5
Droylsden	49½	8	47	8	54½	8	47	8	52	8½	47	8½	52	8	47	8	54½	..	47	..	52	8	47	8	..	..	..	..	49½	5	47	5	54½	5	47	5	52	5	47	5
Devizes	57½	5 to 7	57½	5 to 7	57½	5 to 6	57½	5 to 6	57½	5 to 6	57½	5 to 6	57½	6 to 7	57½	6 to 7	57½	6 to 7	57½	6 to 7	57½	6 to 6½	57½	6 to 6½	57½	5 to 5½	57½	5 to 5½	57½	3½	57½	3½	57½	3½	57½	3½	57½	3½	57½	3½
Dorchester	65	6	48	6	65	5	48	5	65	5	65	5	65	5	48	5	65	5	48	5	60	5	48	5	60	5	57	5	65	3½	48	3	65	3½	48	3	65	3½	48	..
Derby	56	7½	50½	7½	56	7½	50½	7½	56	7½	53½	7½	56	7½	50½	7½	56	7½	50½	7½	56	7½	53½	7½	56	7	47½	7	56	5	50½	5	56½	4½	50½	4½	56	5½	50½	5½
Dudley	54½	7 to 7½	51½	7 to 7½	54½	7 to 7½	51½	7 to 7½	54	7	54	7	54	7 to 7½	51½	7 to 7½	54	7	51½	7	54	7 to 7½	51½	7 to 7½	54	6½	51½	6½	54½	4	51½	4	54	4½	51½	4	54	4½	51½	4½
Durham	49½	8½	47	8½	49½	8½	47	8½	53	6¾	53	6¾	53	7½	53	7½	..	..	..	..	53	7½	53	7½	53	7½	41	7½	49½	4¾	47	4¾	49	4¾	47	4¾	53	5½	53	5½
Darlington	49½	8	44½	8	49½	7½	44½	7½	50	7	50	7	49½	7½	44½	7½	49½	7	44½	7	53½	33/wk	53½	33/wk	53	6½	44	6½	49½	5	44½	5	49½	5	44½	5	49½	5	44½	5
Dalkeith	51	6	42	6	56	6½	42	6½	51	6½	42	6½	51	7½	42	7	51	7	42	7	..	..	..	..	57	7 to 7½	41	7 to 7½	51	17/wk	42	16/wk	56	4	42	4	51	4½	42	4½
Eccles	49½	9	41½	9	54½	9	47	9	52	8	47	8	48½	9	41	9	54½	7½	..	..	52½	8½	47	8½	52½	7	51	7	49½	6	41½	6	54½	6	47	6	48½	5½	41	5½
Edinburgh	51	6	45	6	51	6½ to 7	42½	6½ to 7	51	6½	48	6½	51	7	40	7	51	7	45	7	51	6½	46	6½	51	7	39	7	51	4½ to 5	45	4½ to 5	51	5	42½	5	51	5	45	5
Folkestone	56½	7½ to 8	51	7½ to 8	56½	7½	51	7½	56½	7½	56½	7½	56½	9	51	9	..	7½	..	..	56½	7½ to 8	56½	7½ to 8	56½	6½	50½	6½	56½	5	51	5	56½	5	51	5	56½	5	51	5
Guildford	56½	7½ to 8	53½	7½ to 8	56½	7 to 8	53½	7 to 8	56½	7	56½	7	56½	8	53½	8	56½	7½ to 8	53½	7½ to 8	56½	7½ to 8	56½	7½ to 8	56½	6½	50	6½	56½	4½ to 5	53½	4½ to 5	56½	4 to 4½	53½	4 to 4½	56½	4½ to 5	53½	4½ to 5
Gloucester	56½	7	..	7	56½	7	..	7	56½	6½	56½	6½	56½	6½	..	6½	56½	7	56½	7	56½	7	56½	7	56½	6	45	6	56½	4	..	4	56½	4	..	4	56½	4	..	4
Helensburgh	51	6	45	6	51	7	45	7	51	6	45	6	51	7½	45	7½	51	7	45	7	51	7½	51	7½	56	7	lt dk	7	56	4½	lt dk	4½	51	5	45	5	51	5½	45	5½
Huddersfield	52½	7½	47	7½	52½	7½	47	7½	50	6¾	50	6¾	50	7	50	7	50	6½	50	6½	50	6½	50	6½	55½	6½	42	6½	52½	5	47	5	52½	5	47	5	50	5	50	5
Holmfirth	50½	5/4 dy	..	28/ 31/	..	..	..	..	50½	6	lt dk	..	50½	4/10dy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4/day	..	..	..	..	..	..	..	4/ day	..	..
Hartford	55½	7	..	7	55½	7	53	7	55½	6 to 7	53	6 to 7	55½	8	53	8	55½	7	53	7	55½	7	53	7	55½	6 to 7	53	6 to 7	55½	3½ to 4	53	3½ to 4	55½	3½ to 4	53	3½ to 4	55½	4 to 5	53	4 to 5
*Halifax	49½	34/wk	..	32/wk	49½	34/wk	..	32/wk	50	7	50	7	50	7¼	..	..	50	7¼	..	..	50	7¼	50	..	..	..	..	..	49½	22/wk	..	21/wk	49½	22/wk	..	21/wk	..	..	..	..
Hull	53	7½	47	7½	53	7	47	7	53	7	47	7	53	7	47	7	53	7	47	7	53	7	47	7	53	7	47	7	53	5½	47	5½	53	5½	47	5½	53	5½	47	5½
Hastings and St. Leonards-on-Sea	56½	7½	50½	7½	58½	7	52½	7	58½	7	52½	7	58½	7½	52½	7½	..	piece	wrk	..	58½	8	52½	8	58½	6½	52½	6½	56½	4½	50½	4½	58½	4½	52½	4½	58½	4½	52½	4½
Inverness	51	6	40	6	51	7	40	7	51	6	42	6	57	6	42	6	57	6	40	6	57	5	57	5	57	5	40	5	60	3½	40	3½	60	3½	40	3½	60	3½	40	3½
Kidderminster	56½	7½	50½	7½	56½	6¾	50½	7½	56½	7	50½	7	56½	7	50½	7	56½	6½	50½	7	56½	6	50½	6	56½	6	50½	6	56½	4½	50½	4½	56½	4½	50½	4½	56½	4½	50½	4½
*Lancaster	49½	8½	46	8½	49½	9	46½	9	54	7	54	7	54½	7½	50	7½	54	7½	50	7½	54	7	54	7	54	7	50	7	49½	5½	46	5½	49½	5½	46½	5½	54½	5½	50	5½
Liverpool	55	8½	a44½	8½	55	8½	49½	8½	55	7½	47½	8½	55	8½	47½	8½	55	8½	47½	8½	55	8½	47½	8½	55	7½	lt dk	7½	55	5½	47½	5½	55	5½	47½	5½	55	5½	47½	5½
London	52½	9	47	9	52½	9	47	9	52½	9	47b	9	52½	9	47	9	56½	9	51½	9	50½	10	47	10	52½	8½	48	8½	52½	6	47	6	52½	6	47	6	52½	6	47	6
Leeds	50	8½	lt dk	8½	50	8½	lt dk	8½	50	7½	50	7½	49½	8½	40½	8½	50	8	lt dk	8	50	7½	50	7½	56	7	lt dk	7	50	5½	lt dk	5½	50	5½	lt dk	5½	49½	5½	40½	5½
Lewes	61	7½ to 8½	53	..	61	6 & 6½	53	6 & 6½	61	6 & 6½	53	6 & 6½	61	8	53	8	don	e by	brick	layers	61	7½ to 8	55	7½ to 8	61	6 to 6½	53	6 to 6½	61	5	53	5	61	3½ to4½	53	3½ to4½	61	3½ to4½	53	3½ to4½
Leicester	54	8½	54	8½	56	7½	50½	7½	56	7½	56	7½	56½	7½	48	7½	piece		wrk		56	8	56	8	56	7½	56	7½	54	5½	54	5½	56	4½ to 5	50	4½ to 5	56½	4½ to 5	48	4½ to 5

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PROSECUTIONS UNDER THE METROPOLIS WATER ACT.

ON the 8th ult., at Clerkenwell, Mr. William Torrell, of Rupert-road, Upper Holloway, was summoned by the governor and company of the New River for wilfully neglecting to comply with certain regulations made under the Metropolis Water Act, 1871, and duly confirmed by the Board of Trade.

Mr. Lyon, barrister, prosecuted, and stated that this was one of three prosecutions by the New River Company which were very important, not only to the district immediately concerned, but to the community at large. If certain regulations, sanctioned by the Board of Trade, were not carried out, the water got fouled and wasted. In this instance the defendant had a waste or overflow pipe which ran its contents into a drain, the consequence being that foul air made its way up the pipe and contaminated the water. The defendant, some months since, received a notice from the company to remove the waste pipe, or else to convert it into a "warning-pipe," as described by the Act. The defendant neglected to do this, in spite of frequent cautions that he would be summoned if he did not comply with the regulation.

The defendant pleaded guilty, but said that his landlord ought to be regarded as the responsible party.

The Magistrate said this was a most important prosecution, for the defendant by his conduct was likely to spread dangerous fevers. He must inflict a fine of 20s. and the costs of the summons.

Mr. Charles Layton, of Upper Hornsey-road, was next summoned for having violated Regulation 13, made under the provisions of the same Act. This regulation provides that every cistern which is used in connexion with the water supplied by the company should be made and maintained water-tight, and should be properly covered and placed in such a position as to render it capable of being inspected and cleansed at any time. It also provided that every cistern shall be furnished with a sound and suitable "ball-tap" of the valve kind, suitable for the inlet of water.

Mr. Lyon said the defendant had received constant requests to comply with these regulations, but had neglected to do so.

Evidence was given that there was insufficient covering to the defendant's cisterns, so that the water got fouled. There were two cisterns in the defendant's house, which were difficult and dangerous to get at, and there were two ball-taps which did not work effectually.

The defence was that the water was sometimes thick, and prevented the valves from working properly. The cisterns were accessible by a ladder.

The magistrate said that the New River water had the reputation of being the best in London, and it was highly important that the cisterns should be properly covered and kept clean. He ordered the defendant to pay a fine of 40s. and costs.

WATER COMPANIES' OBJECTIONS.

AT the Worship-street Police-court, the East London Waterworks Company were summoned by Alfred King for that they did neglect to furnish to the said Alfred King, being an owner of a house and entitled to receive the same, a supply of water during the time the rates for such supply had been paid.

Mr. George Lewis appeared for the complainant, and Mr. Wragg for the Company.

Mr. Lewis, in opening the case, said that the company had kept his client, on some buildings he had erected in Bethnal-green, without water for nearly six weeks, although notice had been given and the deposit paid. The company had, he understood, some idea, which he thought foolish, of their rights, and so refused. Mr. Lewis having called attention to the regulations for supplying water by the defendant company, and the section imposing a penalty of 10*l.* for refusal having been pointed out,

Mr. Wragg intimated that the objection on the part of the company was to the fittings. By the regulations the company had a right to refuse to supply water until the water-closets and water-supply apparatus were fitted with an efficient waste-preventer, so that no more than two gallons of water should be supplied at one flushing.

On the premises in question, an apparatus which the company's engineer could not approve had been fixed, and hence the refusal.

Evidence was then given by the plumber employed on the buildings as to the fixing of the apparatus,—a patent called the "Waste Not," of Messrs. Tyler & Sons, Newgate-street,—and as to the efficiency of the same in complying with the regulation as to preventing a flow of more than two gallons at one flushing.

Mr. Alfred Tyler was called, and explained the action of the apparatus. In reply to Mr. Lewis, he said that at one time the water companies sought to have specified in their Acts the apparatus that should be used. A committee was, however, appointed on the matter, and it was shown that it would cost over 4,000,000*l.* to supply London houses under such a regulation. Witness was examined on that committee, and in the end the regulation stood that an efficient waste-preventer should be fitted. The waste-preventer he had patented was in use by most of the great water companies, and was not liable to easily get out of order.

John Topp, foreman to the New River Company; Mr. Walker, sub-manager of the Reading Waterworks Corporation; George Davis, foreman plumber to a builder, and several other witnesses, gave evidence as to fixing the apparatus in question and as to its complying with the regulations.

Mr. Wragg, in cross-examination of some of the witnesses, showed that the apparatus was fixed under the seat of a watercloset, and was worked at the same moment with the ordinary valve.

Mr. Hannay, in giving judgment, said that he could only come to the conclusion that it was an after-thought by the company to say that the apparatus was not efficient, and a letter of the engineer bore that out. The regulations, however, gave them no power to say that the apparatus should not be fixed under a closet-seat. If they thought they had that right they could themselves have raised that question by summons before the Court. They had first taken up an untenable ground, and the new position that the apparatus was not efficient was not supported by evidence. He imposed a penalty of 5*l.* on the company and also ordered them to pay 10*l.* 10*s.* costs.

HOW SHOULD OUR WORKMEN BE EDUCATED?

SIR,—The answer to the above question is simple. Let the wealthy classes demand first-rate work, and let the workman educate himself. Have we any more right to tell him what he ought to do in this respect than he his masters and his rulers, how they should be educated? How did the workman educate himself and win for England her reputation for good work before science was born, or the *dilettanti* attempted to meddle with technical matters they did not understand? How was all the splendid work of antiquity accomplished, but by the means we have described? The finest work ever done was done without either academies, art-schools, technical schools, or any of the modern paraphernalia proposed to attain that excellence, which history teaches us was attained by totally different means, viz., by the State, the Church, or the people devoting their wealth to the encouragement of excellence in the arts and manufactures. To meet the demand that already exists for excellence of workmanship in England our workmen are, in the aggregate, still unrivalled.

Persons who believe they have a mission to talk about technical education, have not yet learned wisdom, that braincraft and handicraft require two distinctly different trainings. Braincraft consists in applying science to the arts and manufactures, in designing and inventing; handicraft, in dexterously applying the hands to the matter to be wrought, and in compelling it to assume the forms that either the designer or the inventor may require. The completeness with which this is performed depends upon the training received through the years spent either in the workshop or the factory. Handicraft, itself, does not require a knowledge of science for its performance. It is not necessary that a working engineer should know anything about the steam-engine in order to execute the parts of it; he may do this perfectly from the drawings and measures furnished by the braincraftsman in the office. It is the same in shipbuilding, cabinet-making, carpentering, &c.

Excellence in workmanship depends upon three conditions:—(1) Upon the enlightened and liberal demand of the wealthy; (2) upon the genius and scientific education of the braincraftsman; and (3) upon the *nous* and dexterous skill of the handicraftsman. It is Class 1 which above all others requires stimulating; for if this be sluggish and niggardly in its encouragement, No. 2 does not bother his head about improving old, or in inventing new, devices; and No. 3 becomes slovenly and careless in execution. Still, if we could imagine each class desiring, as it should, to do its duty, then there should be a Central Technical College, &c., of Applied Science, for Class 2, such as that I proposed to the Royal Commissioners of the Great Exhibition of 1851. If there be anything rotten in the constitution of the workshop and factory, surely it is the masters' business to see that matters are set right.

Would I deny the workman the privilege and pleasure of studying art and science, in his hours of recreation? Most assuredly not; but it should be as a recreation. For the human powers are limited; men cannot simultaneously and successfully carry on the *métiers* of braincraft and handicraft. For the successful persecution of either, one must be subordinated.

The good workman and the technical workman are graphically described in the following lines:—

> "The workman once from mod'rate bit and sup,
> With apron on and linen sleeves tuck'd up,
> From p'raps one pipe, but no long scottish nap,
> Would hasten workward, in his paper cap,
> To factory bench, and there his work set out,
> With square and rule; then eye it well about
> With glance correct, and with his dext'rous hand
> The wood or steel would yield to his command.
> With scrup'lous niceness, nothing left undone,
> His finish'd work was everywhere at one."
>
> "Long taught to trust in some external aid,
> His eyes and hands are of themselves afraid;
> With square and compass ever in his hands,
> The work ne'er answers to his brain's command;
> With ill-train'd touch and speculative eyes,
> He hacks and boggles whilst the tool he plies."

W. CAVE THOMAS.

PAYMENT FOR QUANTITIES BY BUILDERS.

SIR,—I was very pleased to see the letter from Messrs. Lucas & Son (in your issue of the 3rd ult.) on the subject of payments or deposits for quantities, forms of tender, or the like. An old saying runs thus,—"A fellow-feeling makes us wondrous kind," and this may in some way account for my requesting the insertion of this letter.

Although pleased to see the letter, my pleasure was reduced at not finding some of your able correspondents take the matter in hand. Why is this? Are the builders of London and England afraid to offend some of our architects, who must be responsible in a great measure for the acts of their clients? An architect should at once refuse to be a party to an act so unjust, and his client or clients would naturally listen to what he said. The unhealthy scheme of charging for quantities, &c., has been in practice some years, and was, I must confess, I thought confined to small builders only, they being perhaps more easily duped than their more weal hy *confrères*.

I will not enlarge further upon this subject until I have given a few instances, which have come within my own experience, of the disadvantages at which builders tender for work, and endeavour to earn their daily bread, and honestly try to work the capital fortune has placed at their command.

Eighteen months ago I tendered for the superstructure of a large warehouse not very far from the Holborn Viaduct. I did not know the architect personally, but was invited by the proprietor and also by the quantity surveyor, both of whom I knew. Well, out of the seven builders who tendered, my tender was the lowest, and at the time I was given to understand it would be accepted; but behold my surprise when, not hearing from the architect, I called at his office, and was coolly informed that the middle tender had been accepted, and that, although the builder whose tender had been accepted was actually working on the job at the time the tenders were being opened, I had no redress for my waste of time and disappointment, as they "did not bind themselves to accept the lowest or *any tender*," although I had not received a notice to that effect.

A few weeks after this, I received a post-card from an architect, to the effect that the Wandsworth Board of Guardians were prepared to receive tenders for a new doctor's residence (or something of that kind), and that, on payment of 1*l.*, I could obtain a set of quantities and form of tender. After some trouble and expense in getting to Wandsworth Union, I got the required papers, went to the architect's office to see the drawings, prepared my tender, and, at the time appointed, repaired to the Union, and, after being kept waiting nearly two hours, the list of tenders (some twenty in number) were read out. Mine not being the lowest, of course I did not expect it to be accepted; what I did expect was the return of my money, and after conferring with some of the builders present, I asked the architect for it, and the answer I got was, that "we might apply to the Board, but he did not expect we should get it returned." The result of our application was that his prophecy came true; and we came away poorer, and, I hope, wiser men.

Soon after this, looking over the *Builder*, in the advertisements of contracts, I saw one in which builders willing to tender for the erection of a pair of villas in the north of London, were requested to apply to an architect near the Mansion House, when upon payment of 10*s.* 6*d.* they would receive a set of quantities and a form of tender. I sent the required sum, and, after a delay of nine or ten days, received the necessary documents, and, as a matter of course, prepared my tender, and awaited the day and hour fixed for them to be opened. But this time another trap was laid for me, and to my regret I admit it, I fell into it as easily as ever a bird fell into the snare of the fowler. Three days before the tenders were to be opened, a post-card came stating that there were two more pairs of villas to be erected near the site of the former pair, and if I wished to give in a price for them I was to send a cheque for 10*s.* 6*d.* by return of post, he being just about to close the list of competitors. Away went my second cheque, and in the natural order of things the times came round. In each case over twenty builders competed, thus allowing the architect (who took out his own quantities) to net over twenty guineas. The worst feature of this case is, that to the best of my knowledge, the work has never been executed.

In another case I received a specification from a firm of country architects for some repairs to stables, &c., at Bayswater. The property was in a deplorably dilapidated condition, and in the specification was a saving clause to this effect:—The buildings were to be put into a state of thorough repair, and the contractor was to take away any timber or brickwork, &c., and replace with new, just as the architect might direct; and, further, to put an entirely new roof should the above-mentioned functionary consider the old one defective after he had examined it. This was the tenor of the whole specification, which, after carefully reading, I inclosed in an envelope and returned, sending a short note expressing the disgust I felt at receiving a specification so vague and unfair, either to the architect's client or the builder, or both.

One more instance of the many I could quote, and I have done. I tendered to the Metropolitan Board of Works for some alterations and additions to some stables at Brompton to adapt them for a fire brigade station. On inquiring at Spring-gardens for a set of quantities, I was told quantities would not be supplied; but on payment of 15*s.* (which would not be returned) they would give me a set of lithographed drawings and specification, together with a printed form of tender. Not feeling inclined to part with my money too easily, and knowing another builder who would compete, I asked if there would be any objection to two persons using the same drawings, &c., and was told I could use anyone else's drawings if I wished, but they would not recognise a tender unless sent in on the proper printed form, and only one form was supplied with each set of drawings, &c. So I had no alternative, if I wished to tender, but to pay 15*s.* for a scrap of a paper worth at most 1*d.*

It is bad enough to be charged between 20*l.* and 30*l.* for lithography, 5*l.* 5*s.* and upwards for copies of drawings, &c., but for an architect to charge the builder for the privilege of wasting some large amount of his valuable time in preparing a tender, is surely even worse. ELLIVERMOS.

A New Material.—On the evening of February 11, at the Society of Arts, a paper will be read on "A New Metallic Compound and its Application to Industrial and Artistic Purposes," by Granville Cole, Ph.D.

CONDITION OF ST. MARK'S, VENICE.

On the part of the Society for the Protection of Ancient Buildings, Mr. J. J. Stevenson, architect, has made a report on the present condition of the west front of the basilica of St. Mark. The following is an abstract:—

"1. The front generally is plumb and in sound and stable condition, no recent cracks or settlements being discoverable after careful examination.

2. The foundations of the south front, when that front was restored, were examined, and found good enough to rebuild on. The stable appearance of the west front proves that its foundations are equally good. The front is solidly built, and has no superstructure except the thin wall at the back, in which are the west windows. This wall prevents any tendency the façade might have to lean forward.

3. As to the surface. In some few places the marble veneer with which the brickwork is overlaid has been displaced through the loss of the metal fastenings with which it was secured to the wall.

4. The most serious-looking defect, but serious only in appearance, is the condition of two wall pillars at the south end, which bulge out and are supported by wooden beams. Like the rest of the marble face columns, these are merely ornamental, and carry nothing. They were deprived of their support in the old wall by its removal in the recent restoration of the south front, and were temporarily propped up until the further restoration could be proceeded with.

5. During the restoration of the south front the marble cresting of statues and foliation was removed from the southern bay as being unstable. The second from the south is leaning a little forward, and has been propped up by beams. The wall under both does not seem in any danger, and I have no doubt that it is within the resources of engineering science to replace the cresting so that it shall be secure.

6. The repairs which are necessary are trifling, such as replacing the copper pins attaching the marble slabs to the wall, which have fallen out, and pointing the pavement on which the bronze horses stand."

IMPORTANT TO ARBITRATORS.

WYNN *v.* FENWICK.

Leeds Winter Assizes.

SIR,—I beg to call your attention to the above case to-day, in which Mr. Justice Lush has decided that an umpire is not responsible for the arbitrator's costs, the umpire being allowed to hand over the award on payment of his costs only, and that the arbitrators must get their costs "where they can." If this is law, then all I can say is, there is an end to umpires in all matters of dispute. WM. N. WYNN, C.E.

February 4, 1880.

BUILDING-OWNER'S LIABILITY FOR ARCHITECT'S DIRECTIONS.

SANTER *v.* HASLER AND CO.

THIS case (tried at Manchester on Wednesday last before Lord Coleridge and a special jury) raised an important question as to the liability of building-owners for orders given by their architect with regard to the building on which he is employed.

The defendants, who were printers at Bolton, employed an architect, named Simpson, to prepare plans for new works, and they were afterwards built by a contractor named Burrows under Simpson's supervision. When the work was finished the lofty chimney was found to be out of plumb, and Simpson, without any communication with his employers, the defendants, gave instructions to a person named Hindley, a sub-contractor for the brickwork under Burrows, to straighten the chimney by tying a rope to the top of it, and hauling it by means of a powerful winch. The effect of this attempt to straighten the chimney was that it fell, injuring the plaintiff.

For the defendants it was contended that they had not, in fact, authorised Simpson to give an order of this kind, and that he had no implied authority as their architect to give it so as to bind them; but, on the jury finding that the way of straightening the chimney was dangerous and negligent,

Lord Coleridge ruled that Simpson, as architect, had implied authority to give the order in question, so as to bind the defendants, and that they were liable, but stayed execution to enable the defendants to move against this ruling.

Subject to this a verdict was given for the plaintiff for 200*l*.

A Reredos has just been erected in All Saints' Church, Leighton Buzzard, from the designs of Mr. Ewan Christian. It consists of three compartments. The middle one, of alabaster, has five arched spaces filled with Venetian enamel mosaic, in the centre being a cross in statuary marble. The two outside compartments are of rich red Pyrenean marble, panelled with dark bands, and along the top of these, on a band of Jura marble, runs the text, in lead letters, "They said unto Him, Lord, evermore give us this bread." The whole is surmounted by a cornice of Caen stone, with carved paterns. The cost of this reredos has been raised by the lady teachers of All Saints' Sunday School. The work has been carried out by Messrs. Burke & Co., of Newman-street, London.

GENERAL HEALTH THE GENERAL GAIN.

IN a paper lately read before the Manchester and Salford Sanitary Association, Dr. John Watts says:—

"With respect to the extent to which personal and social suffering was accompanied by pecuniary loss, it looked a small matter that a man should miss a few days' work occasionally because he was not quite well; but when we learned that in the Manchester Unity of Oddfellows alone there was paid in 1878 for sickness the sum of 347,213*l*., or 13*s*. 4*d*. per member, and that that large society only represented about 10 per cent. of the heads of families in England and Wales, it was no longer to be called an insignificant affair. The heads of families in England and Wales numbered about 5,111,111, of whom 4,259,259 were working-class families, whose weekly wages would amount to about 5,322,675*l*., or 887,112*l*. per working day. The experience of friendly societies showed an average of sickness varying from 1·94 to 2·45 weeks per annum per member between twenty-one and seventy years of age. But we had to include in our calculation the less prudent men who were not members of friendly societies, and we might safely assume an average sickness of two working weeks and a half per annum, and then we should find that by loss of work through sickness the working men lost no less than 13,306,687*l*. per annum. If we added to that sum 25 per cent. for the losses of employers and dealers, we should find a loss to society, the measure of which was 16,632,359*l*., or 1,108,824*l*. for each day of sickness.

"Here, then, was an additional motive for work as sanitary reformers; for every day that we could lessen the average sickness of the heads of families of England and Wales we should add to the wealth of the country by more than a million sterling. The heads of families in Manchester and Salford numbered about 111,111, the working-class families being 92,593, whose weekly wages amounted to about 115,741*l*. The average sickness of two weeks and a half would in this case, therefore, cost 289,352*l*., or 19,292*l*. per day. For every day that such sickness could be prevented by public sanitary measures, the authorities of Manchester and Salford would add to the wages of working men 19,292*l*. With 25 per cent. added for profits of employers and dealers, the gain to society would be 24,115*l*. for every day so saved. And if the sickness of the workers were lessened by public improvements in and about their homes, and by the isolation of cases of infectious diseases, the health of the non-workers would also be improved, and money would be saved, if not earned.

"LIGHT, MORE LIGHT."

ALLOW me, through the medium of your influential journal, to urge again, and yet again, the necessity for giving us more light. There can be no doubt that, though slowly, yet very surely, the feeling in favour of electric light is gaining ground. We may still cling to our old liking for the more golden tint of gas (and I frankly confess I prefer it myself in a house), but there is no reason why we should give it up altogether. We ought, like the French, to try and combine the two artistically together. In an age when any measure necessary to the public good is eagerly seized on, and can be so rapidly worked out, it is deplorable,—nay, even a positive scandal,—to see the main arteries of magnificent London, such as Bayswater-road, Regent-street, Kensington High-road from Sloane-street to Palace Gardens, &c., so indifferently lighted as they are. But this, though so much to be regretted, is nothing in comparison with the actual danger to life and limb experienced when people have to cross such large open spaces as those before the Marble Arch, or Trafalgar-square, and from St. George's Hospital to the Park. Why cannot we have electric light, at any rate, at such points as these? The French have seized on the idea with energy, the Arc de Triomphe, the Chamber of Deputies, and the architectural beauties of most of their noble public monuments being thrown into bold relief by this new soft moonlight radiance; and the splendour of the Avenue de l'Opéra is unrivalled. Why should we not enjoy the same advantages, and not only our embankment, but the Abbey, Houses of Parliament, St. Paul's, and other structures, be made to emerge from the gloom with which, as night falls, they are now shrouded?

We have suffered enough from want of sun. But the gloom of our city at night is depressing, and in these days of heavy taxation the long-suffering ratepayers have a right to insist on some attention being paid to their cry for what, in the crowded state of our City, is a positive necessity, and which would prove an added protection to our streets. We know deeds of darkness are rarely perpetrated in the light of day, and such a light is offered by the use of electricity. It will, doubtless, find many opponents, and as great a war be raised against it as there was against the introduction of gas by the newspapers in Paris in 1829. But if the measure be one of public utility, we ought certainly, ere another winter is here, with the darkness and discomfort of this, to be in the enjoyment of the benefit of the discovery.

If we cannot have this light, at any rate give us more or better gas. I can hardly believe there is a capital in Europe which presented such a spectacle as London did for three or four hours each day during the three worst fogs of this winter, parts of the City being given up to total darkness. In Bond-street the only lights to afford the faintest glimmer, or give a clue to our whereabouts, were those in the shops; and it is certainly high time that some strenuous movement was made, or power vested in some body of men, to provide on the next recurrence of one of these dismal days, that the streets are sufficiently lighted in the daytime to afford protection to life and limb, and to prevent a vast city like London being left enveloped in more than Cimmerian darkness. CARLLEN.

STAINES TOWN-HALL COMPETITION.

SIR,—Notwithstanding the notoriously immoral way in which competitions are frequently conducted, the facts which you permitted me to lay before your readers with regard to the management of, and decision in, this case, have created evident astonishment.

My suggestion that a subscription should be opened with a view to obtain the opinion of counsel as to the legality of the course taken by the Local Board, appears to meet with the approval of your correspondents, and I may also add of those of my professional brethren to whom I have mentioned the matter.

Now that the subject of competitions is occupying the attention of both of our representative bodies, and the profession generally seem awakening to the importance of acting with vigour on this question, it is to be hoped that so good an opportunity will not be lost as the present affords of publishing abroad, in a very practical way, the great injustice that architects often receive at the hands of promotors of competitions, and of adding another stone to the foundation of a better system.

As you are always foremost in lending your influence and support towards the removal of abuses, especially when, as in this case, they affect not only the profession, but the people, I take the liberty of asking you to permit subscriptions to be placed in your hands towards the object in view. I herewith enclose a guinea. An influential committee is being formed to act in this matter. ESPRIT DE CORPS.

ADULTERATION OF PORTLAND CEMENT.

SIR,—The present unusual depression in prices seems to have led one manufacturing firm, at least, to resort to adulteration of Portland cement with ground furnace-slag. This material is not chemically combined, as Mr. Ransome proposes under his patent, but merely mechanically mixed, and has, therefore, no more strengthening effect than so much sand.

In the interest of respectable cement-makers, and of the public, this practice should be exposed. It is not enough to allege in justification that the mixture may be sold to dealers as such. The dealers have to sell to the consumers, and these last do not get what they desire.

The most effectual security against adulteration is the careful application of tests for strength. Unfortunately, the demand from builders, and too often from engineers, runs on quick-setting cement, the tests of which are necessarily low. Let 350 lb. tensile strain to the square inch, at seven days, be the minimum standard, and there would be little risk of

deteriorating mixtures. The Metropolitan Board of Works very judiciously fixes the standard at 400 lb. to the inch, and the correct requirement is unquestionably from 350 lb. to 400 lb. Unfortunately, engineers sometimes sanction, for works requiring the best cement, so low a standard as 250 lb.; as, for example, in the case of the projected Forth Bridge. This standard would admit of a mixture of 25 per cent. or more of ground slag, and of tenders at rates proportionately low, thus placing the maker of genuine cement at a serious disadvantage.

For what do our Institutions of Civil Engineers and our Board of Trade supervision exist, when the standard admitted for such an important engineering material as Portland cement remains at the caprice of individuals?

A Cement Manufacturer.

"A LAMENTED LOSS."

Sir,—At page 142 of your last issue, it is insinuated by a correspondent, Mr. T. Judd, that I am to blame for being the cause of some recent lamented deaths. Now I beg to be allowed, in my own defence, to state that I was not the cause of the said deaths, and that the blame does *not* lie at *my* door.

Instead of my forcing my presence upon them, the fact is that I was dragged, *nolens volens*, into their company by the action of the fires in their house. All and sundry throughout this kingdom for years back have been warned to bar their doors against me, but instead of doing so, many seem to do all they can to drag me into the bosom of their families. Mr. Judd states that I gained a surreptitious entrance into the house through the defective joint at D on his sketch; but I ask, Who is to blame for my getting into the soil-pipe B at all? The truth is, there ought to have been a proper diconnecting ventilating trap or traps between the soil-pipe and the sewer, and then I could not have got access into the house, although there had been half a dozen defective joints in the soil-pipe.

If drains and soil-pipes could be well fitted up, free of expense, these dangers from my presence in houses would cease, but such not being the case, people often prefer to hug their gold and play a game of chance with me.

Sewer Gas.

GAS PIPES AND RATS.

Sir,—I notice in your issue of the 24th ult. you mention an instance of an escape of gas caused by rats gnawing through a "compo" pipe. Perhaps the following extract from the *Gas Trade Review* of the 6th of June last may interest some of your readers:—

"Twenty-three cases of erysipelas have occurred at the Wells Lunatic Asylum since January last. It was thought that this was caused by the presence of sewer gas in the building and ventilating pipes of the closets. When the pipes were exposed, it was found that a hole, 3 in. by 1½ in., had been bitten by rats through a lead pipe communicating with the sewer, through which, of course, sewer gas had escaped. It should be generally known that lead or "compo" pipe is liable to be thus damaged. We have seen a piece of "compo" gas-pipe gnawed by rats through half its section for a length of 4 in., by which a dangerous escape of gas was occasioned. We hear of rats getting into houses by "the drains"; and it would be worth while to ascertain how they get from the drain-pipe into the house, especially when, as at Wells, any part of the soil or waste pipes is made of lead.

A Practical Student.

THE EVILS OF OVERFLOW PIPES.

Sir,—The most fruitful source of evil in the admission of sewer-gas into our houses is caused by the provision made in water-closets, baths, and lavatory basins for contingent overflow.

Take, for instance, the water-closet. You fix a valve-closet, the valve being an effectual stop to any admission; but to provide for a possible overflow, which may not take place, the manufacturers make a communication between the soil trap and the upper side of the basin, which lets into the house all that the valve would otherwise keep out; this communication is syphoned, but there is seldom water in it, or if there is it makes but very little difference.

The same thing applies to baths and lavatory basins; you put in your plugs, and while you are using your bath or basin, the household and yourself are poisoned by the sewer-gas escaping through the aperture of the overflow.

The water in our cisterns was poisoned in like manner until the water companies, to prevent waste, compelled the overflow to be disconnected from the soil-trap and carried outside the house or over sinks. This should be done with the overflow pipes of water-closets, baths, and lavatories. If this were done, and the soil-pipe carried outside the house to the level of the roof, very little sewer-gas could enter the house.

The lead soil trap, upon and into which the water-closet basin is fixed, should be dispensed with. At each flush the contents should go at once into the drain or sewer.

Water should never be used inside a house as a trap; its legitimate use there is to flush the pan and keep the valve moist. The efficiency of the valve is at once shown by its retaining the water; the greater the pressure without, the tighter the seal.

As a further protection, all pantry and scullery sinks (especially those in basements) should have a full way stop-cock to the pipe under the sink, to let off after using, and to stop any return.

J. P.

PAINTING ON STONE.

Sir,—About twelve months ago, I helped to do a room in a large building. In the first place we did the walls pale green in distemper, and about three days after it was finished the colour fled in patches about the room, although the walls were perfectly dry. Well, it was then decided to paint the walls, and they had four coats, finished pale green, in flatting, and at the time looked proper; but in a few weeks after, the plaster on the walls seemed to be peering through the paint, and now the walls look horrid; there is stuff on them now in drops like gum, and it is sticky. The building is of Bath stone and plastered. There is one wall, only an inside one, brick and plaster, no stone of course, and the paint on this is as good as ever. In conclusion, I would say I know it was genuine white lead put on, and was done as well as possible with good coats, and the walls were dry, but every wall where the Bath stone (or it may be Painswick stone, I do not know, it is a soft stone of light colour) is gone frightfully bad. Can you tell the cause or suggest a remedy? Would patent knotting do any good?—you may say. We put that on, but it is no good. They say it is salt in the stone, but shall be glad of your opinion.

Inquiring Painter.

PROVINCIAL NEWS.

Newhaven.—Newhaven is growing rapidly. Houses and new erections of all sorts are springing up in every direction. On the Holmes and Glebe building estates a large number of dwellings are being built. The harbour works continue to make steady progress. About 600 men are now employed, and it is stated by the *Sussex Daily News* that this number is about to be increased to 1,000. The foundations of the sea-wall are in an advanced state, and preparations are now being made on the east side of the river, where a shed has been erected, for the composition of the 100-ton blocks of concrete, which will be made in a large mixing-pan, the contents being then transferred to a steam hopper. The concrete blocks having become set in the "hopper" will then be conveyed to where the breakwater is to be; the bottom of the hopper drops out, and the block falls into its place. Mr. Cary is the engineer in charge of the works, Mr. Robinson being the manager.

Dawlish.—The directors of the Dawlish Bathing Pavilion Company met on the 7th ult., when the architect (Mr. Bridgman, of Torquay) was in attendance. Six tenders for the construction of the pavilion were opened by the chairman, and that of Mr. J. H. G. Lamacraft, of Dawlish, for 399*l.* 18*s.*, was accepted. The pavilion is to be completed within three months from the date of signing the contract.

Totnes.—The Totnes Town Council on the 7th ult. accepted the tender of Mr. W. M. Tollitt, of Totnes, for carrying out the sewerage works on the Bridgetown side of the borough at 886*l.* It was resolved that the whole scheme for the drainage of the parish of Totnes, in accordance with Mr. Appleton's plans, as approved by the Local Government Board, be at once carried out, excepting only the portion relating to filtering-tanks and drains thereto.

Coventry.—The King's Head Hotel luncheon bar,—the first completed portion of the new hotel now in course of erection by Mr. James Marriott, contractor, from plans supplied by Mr. George Taylor, architect, of Coventry,—has lately been opened. It measures 40 ft. in length by 24 ft. in its greatest breadth, and forms a lofty apartment. There are two entrances,—one at the corner of Hertford-street, and the other next the large gateway in Smithford-street. The windows, doors, and fanlights are all of stained glass, from the works of Mr. Samuel Evans, of West Smethwick. Each window is in two portions, the upper and smaller part containing a medallion of the head of one of the English kings; the lower panel, separated from the upper by a bar of roundlets, bears a pictorial representation of some event, traditional or historical, connected with the city, and the whole is framed in a conventional border of a foliated pattern, the unoccupied spaces being filled with grisaille quarries, bearing in outline conventional forms of national and local flowers. Both the medallion and the subject beneath are enclosed in an inner framework of Renaissance design. In the bar itself there are seven windows and two double doors, with fanlights above them; and, in the smaller room adjoining, one window and fanlight. The selection of the subjects and the general arrangement were entrusted to Mr. W. G. Fretton. The first window on the Smithford-street side represents Lady Godiva on a white horse. The second one displays the sequel of the traditionary story, Leofric granting Godiva a charter of freedom to the citizens. The centre window on the Smithford-street side represents the Trial by Combat on Gosford-green, before Richard II., between the Dukes of Hereford and Norfolk in 1397. The next window has in the upper panel the portrait of Henry IV., and the scene selected is the arrest of Henry Prince of Wales, 1411, at the Priory, by the then mayor of Coventry, John Hornby, for some act of insubordination. Over the doorway towards Broadgate are the Sword and Mace, and Prince of Wales's plumes, as originally arranged, with the motto "*Ich Dien*," and on the panels the figures of Henry VI. and his Queen, Margaret of Anjou, who were such noted benefactors of Coventry. The first window in Hertford-street has in the upper panel the head of Henry VII., and the scene below represents the knighting of Robert Onley, mayor, in 1485, by the King, on his visit to Coventry after the battle of Bosworth Field. The next and last window in the refreshment-bar exhibits a portrait of Charles I. in the upper portion; and in the lower, Sir William Dugdale, as herald, summoning the city to surrender, at Newgate, Much Park-street, 1642. The smaller room adjoining has in the fanlight over the door a King's crown, with quarries bearing alternately roses and rose leaves. In the upper portion of the window is the head of Henry V., and in the lower, Prince Henry and his boon companions are seen carousing. The whole of the gasfittings, both for exterior and interior, have been manufactured by the Coventry Art Metal Work Company, Gosford-street Works, from the designs of Mr. H. P. Hodkinson, jun.

CHURCH-BUILDING NEWS.

York.—The new chancel which has been added to the church of St. Olave's, Marygate, York, to the memory of the late Rev. F. A. Bartlett, who for many years was the vicar of the parish, has now been completed. The chancel, the cost of which (upwards of 1,100*l.*) is being defrayed by subscription, has been erected from plans prepared by Messrs. Fowler Jones & Son, Micklegate, and is in the Perpendicular style. It has an open-timbered roof, and gives about 18 ft. additional length to the edifice. The existing east window had necessarily to be removed, but in the one built in its stead, which is 15 ft. in height by 7 ft. 11 in. broad, all the old glass which its predecessor contained has been used, some modern-glazed work at the top being discarded. On the north side an organ-chamber, 14 ft. by 10 ft., has been constructed, and an opening made into the north aisle. Accommodation is also made for the choir, who, up to the present, have been located in the gallery at the west end.

Stepney (*London*).—The Bishop of London has consecrated the new church of St. Augustine, Stepney. The new building is situated in Settle-street, off Commercial-road, a densely-populated district, and its cost is estimated at about 7,500*l.* It is 96 ft. long by 53 ft. wide, and is substantially constructed of stock brick and Bath stone, varied with red brick in the arches of the nave and windows. The church is seated for 600 persons, but a gallery can be added, when necessary, to afford accommodation for other seventy-five worshippers. The site for the church, which is sufficient also for a parsonage, has been already purchased, at a cost of between 5,000*l.* and 6,000*l.*, and it is intended to proceed without delay with the other portions of the undertaking,—with the parsonage and a mission-house, and with the fitting up of a parish-room and Sunday-school. The architects of the new building are Messrs. Newman & Billing.

Badingham.—The parish church of Badingham, Suffolk, has been re-opened for use, after restoration under the direction of Mr. Blackburne, architect, London. The restoration is only completed as regards the chancel, a main feature of this part of the work being that

the windows have all been filled in with coloured glass. The floor has been completely re-paved with Minton's tiles, and in lieu of some deal pews, oak benches have been provided, the fronts of these being carved. An oak screen has likewise been erected, some of the carving of the old screen being worked into the new one. A new open roof of pitch-pine has been erected, the principals of which spring from carved stone corbels. Externally the walls of the chancel have been refaced with flint. In the nave the main alteration is the re-benching, the pews having been succeeded by benches of varnished pine. The font, which is placed at the west end of the church, is an interesting specimen of Mediæval workmanship. Its eight sides contain carved representations of the seven sacraments of the Romish Church, one of the seven being duplicated. With the exception of some of the heads of the figures, which are defaced, the carving is in a very good state of preservation. In all about 700*l.* have been now spent. The work has been carried out by Messrs. Grimwood & Son, of Weybread.

Lewisham.—The church of St. George, Perry-hill, Lewisham, Kent, was consecrated on Saturday, the 17th ult. The entire cost of the erection of this church has been defrayed by the patron, Mr. George Parker, J.P., of Lewisham House, and the outlay has amounted to about 8,000*l.*, exclusive of the organ. The church consists of a nave, with clearstory, and aisles on the north and south sides, divided by arcades with Mansfield stone columns, with carved capitals and moulded arches. It has a special feature in the spacious apsidal baptistery at the west end of the nave, with an open vestibule on each side leading into inner and outer porches. The chancel, which is 40 ft. long and the same width as the nave, is approached from the nave by three steps, with four additional steps to the sacrarium, including the altar-piece. It is apsidal on plan, with timber-vaulted roof supported by marble shafts. In the north wall is a credence, and in the south wall is a triple sedilia. The font is enriched with marble shafts, &c., and this, together with the pulpit and the carving, were executed by Mr. Robert Smith, of Lambeth-road. The vestries for the clergy and choir are on the south side of the chancel, with communications into the church from the chancel and south aisle. On the north side is the organ-chamber (with furnace-room beneath), the tower rising above it to a height of about 70 ft., with a pinnacle at each angle, the one over the belfry-stairs rising to a further height of more than 30 ft. The walls are faced with Kentish rag-stone in horizontal drop courses, the dressings being in Bath stone. The style is English Decorated. The builder was Mr. B. E. Nightingale, of the Albert Embankment, and the architect is Mr. William C. Banks, of London. The tile-paving was executed by Messrs. Hawes & Co., of Bloomsbury.

Designs in the Precious Metals.—The Goldsmiths' Company have offered a number of prizes for the best design sent in competition for subjects advertised in our last issue. The offer is a liberal one, and we desire to draw attention to it.

Miscellanea.

The Census of 1881.—A deputation from the Council of the National Association for the Promotion of Social Science has had an interview with the President of the Local Government Board at Whitehall, to urge upon him the following recommendations in regard to the Bill for the taking of next year's census, which will be introduced by Mr. Sclater-Booth in the ensuing session. 1. That it is essential that all the particulars given in the census for each part of the United Kingdom, 1871, be repeated in the census of 1881, with such amendments in detail as may be found desirable. 2. That it is desirable that as far as practicable the census for each part of the United Kingdom contain similar information, and be the same in form. 3. That it is desirable that in the census of England and Scotland, as in the census of Ireland in 1871, the religious profession of each inhabitant be ascertained, and that this inquiry form part of the householder's schedule. 4. That it is desirable that in the householder's schedule there be a column for sickness or injury in the following form:—"Sickness or Injury.—Sick to include all who require medical advice, or who are disabled from following their usual employment. Write the name of disease from which the patient is suffering." 5. That it is desirable that a return of the number of rooms in each house be given in the census of England and Wales, and in that of Ireland, as has already been done in the census of Scotland. 6. That it is desirable that houses be distinguished between those intended for habitation and those not intended for this purpose. 7. That it is desirable that there be a return of houses intended for habitation which are unlet. 8. That the returns under the head of occupation be amended to show the nature of the employment with greater precision. 9. That for every city and town the concentrated population, and the area which it occupies, should be returned, whether its boundaries be coincident or not with any legally defined boundary or boundaries. 10. That in the case of towns and other areas of concentrated population, summaries of the returns be made up and recorded for each enumerator's district, and be open for inspection at the offices of the superintendent registrar. 11. That the census should be quinquennial instead of decennial as now, each census to be complete and to contain full particulars. The deputation consisted of Mr. F. S. Powell, Mr. Westlake, Q.C., Mr. F. G. P. Neison, and Mr. J. L. Clifford Smith, assistant secretary. Mr. Sclater-Booth promised to consider the suggestions made.

New Cattle Market, Chelmsford.—A new cattle market, provided by the Local Board of Health, has just been completed at Chelmsford. The total cost will amount to about 13,000*l.* It is in a central situation, behind one of the principal streets of the town. The charter for a market at Chelmsford was granted by King John, in the first year of his reign, and it has been held in the streets of the town from that time up to the present. It is believed that the new market will considerably extend the business of the town and district.

The Tay Bridge Bill.—In the Bill which the directors of the North British Railway Company propose to introduce into Parliament with reference to the reconstruction of the Tay Bridge, the powers asked regarding the contemplated lowering of the height of the structure will, we understand, be of a general character, the precise extent of the reduction being left an open question, so that it may be fully considered.—*Scotsman.*

The Sunday Society.—A small exhibition of paintings was open to the members of the Sunday Society on Sunday last at 29, Piccadilly. Owing to the fog not more than fifty were present. The collection will, we understand, be open to ticket-holders on the next two Sundays.

The Byron National Statue. — The National statue about to be erected from the model of Mr. Richard Belt, sculptor, has been cast by Messrs. Cox & Sons, at their Bronze Foundry, Thames Ditton. The poet is represented seated upon a rock in an attitude of meditation, with his favourite dog by his side.

Greenock New Docks.—The supply of the Portland cement for these works (over six thousand tons) has been given by the contractor, Mr. J. Waddell, Edinburgh, to Messrs. William Lovett & Co. (Limited), Eastcheap, London.

Text-Books of Science. — Students and others who may need reliable text-books of the mechanical and physical sciences, will find a number to choose from in Messrs. Longmans' list in our advertisement pages.

TENDERS

For erection of warehouse in Princes-street, Lambeth, for Mr. J. Hoskins. Mr. T. J. Lynes, architect. Quantities by Mr. W. E. Stoner:—

Carless	£3,111 0 0
Hobson	2,078 0 0
Turtle & Appleton	2,052 0 0
Kirk	1,997 0 0
Higgs & Hill	1,994 0 0
Lathey Bros.	1,987 0 0
Dearde	1,941 0 0
Wilson & Exton	1,892 0 0
Aviss	1,847 0 0
Nightingale	1,792 0 0

For repairs, alterations, and decorations to a residence at Fowler's Hill, Salisbury. Mr. Fred. Bath, architect:—

Foley	£372 0 0
Tryhorn	305 0 0
Adey	289 0 0
Barber	276 12 6
Harris & Dolman (accepted)	274 10 0

For the erection of four cottages and a dwelling-house in North-street, Wilton, for Mr. S. Ingram. Mr. F. Bath, architect:—

Pomroy (accepted)	£670 0 0

For new roads, pipe sewers, and surface water drains, on the British Land Company's Park Hall Estate, Finchley. Mr. Henry B. Michell, surveyor:—

Keeble	£3,349 0 0
Crockett	3,209 0 0
McKenzie & Co.	3,033 0 0
Harris	2,988 0 0
Dunmore	2,955 0 0
Killingback	2,927 0 0
Pizzey	2,824 0 0
Acock	2,783 0 0
Wilson	2,760 0 0
Thompson & Covington	2,740 0 0
Jackson	2,666 0 0
Peill (accepted)	2,230 0 0

For Stoke-upon-Trent Sewage Disposal Works and Main Intercepting Sewers. Messrs. Scott & Redgrave, Broadway-chambers, Westminster, and Mr. William Bowen, borough surveyor, Stoke-upon-Trent, engineers:—

	Contract No. 1 Sewage Tanks.	Contract No. 2 Engine House.	Contract No. 3 New River Course.	No. 4	No. 5	No. 6	No. 7	No. 8 Machinery.
				Intercepting and Outfall Sewers.				
John Bell, Wood-green, London	£7,597 6 11	£1,518 11 9	£2,279 3 4	£4,735 0 3	£236 10 3	£3,637 5 6	£8,117 6 7	—
Kellett & Bentley, Lincoln	4,811 11 2	1,235 17 11	2,473 13 6	5,289 7 7	293 11 0	6,408 15 2	8,972 18 0	—
Small & Sons, Leicester	4,388 3 9	1,480 14 6	2,017 12 11	5,807 6 0	237 15 0	4,272 13 3	6,709 1 6	—
T. Kirk, Congleton	4,295 19 3	1,674 9 6	2,343 0 6	3,908 11 6	175 10 0	3,070 0 0	5,980 0 0	—
Isaac Anwell, Liverpool	4,111 0 0	1,502 18 4	2,023 17 2	4,389 14 6	181 0 0	2,850 0 0	5,049 0 0	—
Carlisle & Co., Belfast	3,890 4 2	1,835 4 10	2,053 16 10	4,350 14 2	214 0 0	3,303 0 0	6,154 0 0	—
George Bell, Gateshead	3,985 10 0	1,685 5 6	2,348 6 0	4,403 8 1	188 15 0	3,354 9 3	5,250 10 0	—
Drewitt & Pickering, Stoke-upon-Trent	4,028 16 4	—	1,886 12 10	4,603 3 4	202 0 0	3,381 0 0	6,267 0 0	—
Douvenir & Quesnel, Stoke-upon-Trent	4,479 10 8	—	2,070 7 5	4,942 9 10	171 7 6	2,838 17 6	5,428 10 6	—
John McKay, Stoke-upon-Trent	3,533 12 0	—	1,520 18 4	3,723 15 11	156 7 6	2,597 15 8	5,127 8 7	—
C. Chamberlain, Bridgewater	5,092 2 6	1,900 9 9	3,050 6 6	6,500 17 6	—	—	—	—
R. Bradbury, Stoke-upon-Trent	4,417 13 4	1,597 3 8	1,908 10 0	4,293 5 3	—	—	—	—
Dodds & Co., Sheffield	5,750 0 0	—	—	—	215 6 6	3,709 0 0	6,200 0 0	—
J. Smith & Sons, Stoke-upon-Trent	—	1,547 18 1	1,995 8 8	4,370 0 0	164 14 0	2,874 6 6	5,349 18 9	—
W. Hayes, Bolton	—	—	2,540 8 11	4,248 16 3	226 16 9	3,026 17 11	5,840 0 0	—
Rowson & Co., Wolstanton	—	—	—	5,700 0 0	242 7 8	3,433 9 6	6,838 3 6	—
Samuel Smith, Basford	—	—	—	5,026 19 0	163 10 0	2,624 5 6	5,464 18 6	—
G. Smith & Co., Southport	—	—	—	—	218 6 0	3,328 2 0	5,216 11 0	—
Barlow, Stoke-upon-Trent	—	—	—	—	—	—	—	—
Windsor & Masters, Stoke-upon-Trent	—	1,615 0 0	—	—	—	—	—	—
Toxall & Heath, Stoke-upon-Trent	—	1,447 0 0	—	—	—	—	—	—
Gallimore, Newcastle-under-Lyme	—	1,390 0 0	—	—	—	—	—	£847 0 0
Hartley & Arnoux, Stoke-upon-Trent	—	1,378 0 0	—	—	—	—	—	719 0 0
Cowlishaw & Shaw, Newcastle-under-Lyme	—	—	—	—	—	—	—	700 0 0
Dean, Law, & Machin, Stoke-upon-Trent	—	—	—	—	—	—	—	613 10 0
Sylvester, Newcastle-under-Lyme	—	—	—	—	—	—	—	575 0 0
Western & Co., Derby	—	—	—	—	—	—	—	

For the erection of New Grammar School buildings, Crewkerne :—

Trask & Bladwell	£8,693	0	0
Ashby & Son	8,690	0	0
Church	8,349	0	0
Crick	8,200	0	0
J. & S. R. Garvet	7,723	0	0
Hatherley	7,700	0	0
Forse & Ashley	7,688	5	0
Coleman Bros.	7,685	0	0
Stephens & Bastow	7,499	0	0
Crook	7,479	0	0
Brock & Bruce	7,400	0	0
Hoare Bros. & Walden	7,300	0	0
Huey	7,298	0	0
Jones	7,260	0	0
Howell & Son	7,230	0	0
Langdon & Poole	7,158	0	0
George	7,110	0	0
Trask	7,095	0	0
D. J. & D. Davies	7,050	0	0
Jones & Co.	6,975	0	0
Thomas	6,888	0	0
Bartlett	6,800	0	0
Hale & Son	6,784	0	0
Veals	6,749	0	0
Draper	6,700	0	0
Trevena (accepted)	6,547	0	0

For detached house at New-cross. Mr. William G. Nottage, architect :—

Sheffield & Prebble	£1,889	0	0
Rowe	1,835	0	0
Nicolls	1,658	0	0
Hubble & Trott	1,556	0	0
James	1,539	0	0
Redman	1,525	0	0
Salt	1,447	0	0

For erecting house and shop in Wandsworth-road, South Lambeth, for Mr. R. Cooper. Mr. James Wallbridge, architect :—

Yan	£935	0	0
Gill	917	0	0
Wilkins	886	0	0
Linfield	840	0	0
Hooper	736	0	0
Holliday	719	0	0

For erecting detached residence at Stanton St. John, Oxford, for the Misses Thompson. Mr. Fred. Codd, architect :—

Wells	£4,889	0	0
Symm & Co.	4,887	0	0
Franklin	4,879	0	0
Jones	4,835	0	0
Groves	4,683	0	0

For the erection of a hospital for 880 patients, including chapels, boundary-walls, laundries, stables, &c., at Hope, near Eccles, for the Guardians of the Salford Union. Quantities supplied. Mr. L. Booth, architect :—

*For the whole of the work.**

Garlick	£49,000	0	0
Lees	48,465	11	0
Napier	48,279	0	0
T. & W. Meadows	48,015	0	0
Johnson	47,901	8	4
W. H. Brown	47,550	0	0
Whitell	47,414	0	0
Statham & Sons	47,360	0	0
Davies & Mawdsley	46,644	0	0
Herd	45,247	0	0
Wm. Brown	45,100	9	0
Neill & Sons	44,836	0	0
Webster	43,803	0	0
Southern (accepted)	43,480	0	0

* A large number of tenders were also sent in separately for the various works.

For the restoration, after fire, of the City-road Wesleyan Chapel. Mr. Charles Bell, architect. Quantities by Mr. Henry Lovegrove :—

Harris & Co.	£5,566	0	0
Thompson	5,390	0	0
Chessum	5,389	0	0
Brass	5,248	0	0
Dove Bros.	5,185	0	0
Woodward	4,293	0	0
Nightingale	4,382	0	0
Hobson (accepted)	4,277	0	0

For shops and residences, Green-lanes, Stoke Newington, for Mrs. Ponier. Mr. Edwin T. Hall, architect :—

Toms	£5,350	0	0
Bangs & Co.	4,940	0	0
Julian & Co. (accepted)	4,820	0	0

For warming by hot water the new Wesleyan Chapel, Roupell Park. Mr. Charles Bell, architect :—

Gibbs	£397	0	0
Jones & Co.	380	10	0
Rosser & Russell	300	0	0
Thames Bank Iron Company	300	0	0
Perkins & Son	291	18	0
Kinnell & Co.	215	0	0
Bacon & Co.	180	0	0
J. & C. Bowyer	167	14	0

For the construction of roads and sewers, Porter's Town, Southend-on-Sea, for the Southend Local Board. Mr. B. R. Harrington, surveyor. Quantities supplied :—

Percy	£1,512	0	0
Hawkins	1,350	0	0
Bell	1,324	6	6
Wood	1,158	5	7
Huntley & Co.	921	11	8
Coker	868	9	10
Cardiss	828	16	8
Gollard	778	19	10
Marriott	778	19	6
Spendelow	684	10	0
Stranchen	678	18	0
Steward (accepted)	626	7	6

Addition to Clyton College.

Sir,—In your issue of January 24 the tenders for the above are published. In our tender of 6,900*l.* we discovered our error, and sent a corrected tender of 5,174*l.* By some means the first amount was sent you. You will oblige us by giving the correct amount, viz., 5,174*l.*, in your next issue. Stephens & Bastow.

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E. S.—P. R.—R. E. M.—R. S.—E. B. L.—C. K.—W. C.—P.—F. & H.—W. & E.—M. J.—W. B.—J. W. & Co.—F. B.—C. E. A.—J. W. R.—J. H.—J. F.—H. B. M.—H. L.—E. T. H.—M. J. C.—W. M.—S. & R.—C. & Sons.—C. B.—W. N. W.—M. & S.—B. R. H.—M. & Co.—E. C.—C. J. P.—W. G. N.—F. W.—D. R.—E. W.—H. T.—D. E. W. G. S.—R. W. E.—Dr. H. M. (apply to the patentees themselves).—S. & Co. (we are forced to decline to insert statements as to tenders which give only one name, and no amounts)—J. W. (the direct answer would be no; but circumstances would have to be considered before risking litigation).—C. H. & Sons (sent too late).—A. P. (declined with thanks).—Bad writing (a correspondent complains that his name is printed incorrectly at the head of some tenders recently published. In his present letter there are three names absolutely unreadable; we have no doubt, therefore, he has simply himself to thank for the mistake).—Society of Engineers (illegible).

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

Note.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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